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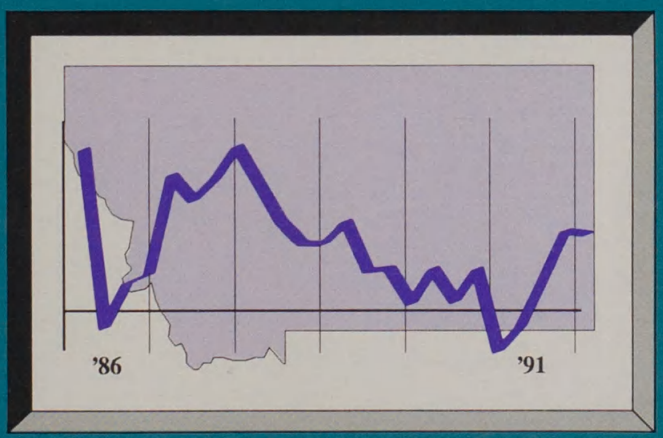

RECESSION IN MONTANA

PROCEEDINGS OF THE
16TH ANNUAL ECONOMIC OUTLOOK SEMINAR
1991

MONTANA BUSINESS QUARTERLY

Volume 29, number 1 Spring 1991

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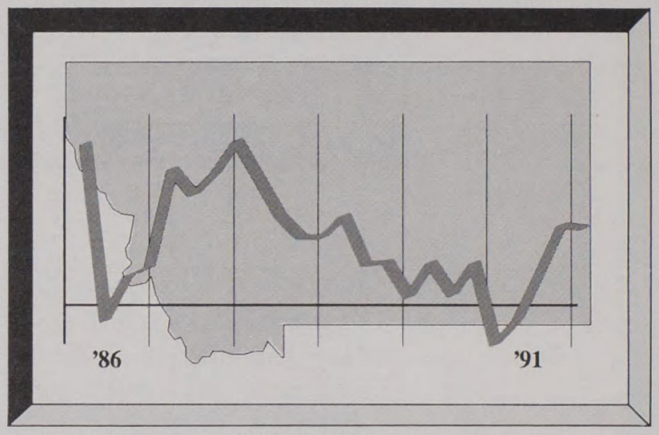


RECESSION
AND ITS AFTER-EFFECTS

The State and Local Outlook for 1991

by Paul E. Polzin

Montana's economy has its own cycles and trends, but at some level it mirrors the national economic picture. It's the national trends we'll look at first in order to understand what they mean for Montana's economy in 1991. We'll also examine the ways in which Montana's economy diverges from the overall United States' economy, with an eye toward the long-term Montana outlook.

First of all, we need to determine whether or not the U.S. economy is really in a recession. Unfortunately, the definitive answer won't be available for some time. Data which reveal the precise turning point in a business cycle are not available until well after the event.

Table 1
Recession Score Card
Selected Recession Characteristics

Peak	Trough	Duration (Months)	Change in Real GNP (Percent)	Change in Industrial Production (Percent)
Nov 48	Oct 49	11	-1.5	-10.1
July 53	May 54	10	-3.2	-9.4
Aug 57	April 58	8	-3.0	-13.5
April 60	Feb 61	10	-0.9	-8.6
Dec 69	Nov 70	11	-0.8	-7.0
Nov 73	March 75	16	-4.5	-14.8
Jan 80	July 80	6	-2.4	-5.8
July 81	Nov 82	16	-3.5	-9.0
*Sept 90	*Feb 91	*5	*-0.6	*-1.4

*Projected
Source: Wharton Econometric Forecasting Associates.

This Is a Slowdown

Preliminary indicators, however, all show a marked slowdown in the economy:

- Employment growth has stopped;
- Unemployment is up;
- After adjusting for inflation, personal income has stopped growing;
- Consumer expectations have plummeted;
- Orders for durable goods have decreased; and
- The Index of Leading Economic Indicators continues its decline.

Taken together, these measures certainly suggest recession in the national economy.

How bad will it get? Currently, consensus holds that we're in a for a short, mild recession. For instance, Wharton Econometric Forecasting Associates (WEFA Group), the economic forecasting service to which the state of Montana subscribes, predicts that the recession will last from the fourth quarter of 1990 through the first quarter of 1991. The WEFA Group also predicts that compared to previous recessions, declines in real Gross National Product (GNP) and industrial production will be relatively mild.

Will the recession be mild or severe?

Basis of a Short Recession

The WEFA Group bases its forecast of a short, mild recession on several factors.

1. WEFA assumes the price of oil will peak in the first quarter of 1991, then sharply decline. Current increases in the price of oil are proportionately less than those of 1973 and 1979. Also, the ratio of energy consumption to GNP is now lower than it was in the 1970s and 1980s, so any increase in price will have proportionately less impact.

2. The U.S. inflation rate is not particularly high, so the Federal Reserve system will have less incentive to put on the monetary brakes and increase interest rates.

3. Firms may not have to significantly decrease their orders to keep inventories in line with declining sales.

4. Exports will continue to grow because most world economies continue to grow. Germany and Japan, in particular, are not experiencing slowdowns. A continued weak dollar will help promote export growth.

5. Finally, some short-term increases in defense spending have been associated with the Operation Desert Storm. These increases counterbalance declines in other categories.

Worst Case Scenario

Experts aren't unanimous, however. Other factors put the national economy at risk for a severe recession.

1. Problems with U.S. financial sector (i.e., the Savings and Loan crisis) could lead to loss of confidence in financial institutions.

2. Tax increases went into effect on January 1, 1991. Fiscal policy became more restrictive in the midst of a recession.

3. Over the last decade federal government cutbacks reduced the quality of economic data. Our information may be sending us the wrong signals.

4. Debt from consumer, business, and government borrowing has never been higher. This situation could fuel skyrocketing interest rates if foreigners -- who finance a good share of our borrowing -- decided to stop buying our debt. Some evidence suggests that Japanese banks are becoming more hesitant to make loans to U.S. borrowers.

5. At this writing, the war with Iraq remains a significant wildcard. It now appears that the war will be over quickly. In this case, GNP growth will be only slightly less than if there had been no war. If the war drags on, there will be continued high oil prices, depressed consumer sentiment, and a weaker, more lethargic recovery.

Montana and the Recessionary Cycle

How do these factors effect Montana's economy? In a word, immediately. Cycle turning points -- the peaks and troughs associated with business cycles -- occur in Montana at almost the same time as they occur nationwide.

For one thing, the wood products industry -- one of the state's three largest basic industries -- is highly sensitive to the national business cycle. It quickly lays off workers and reduces production when interest rates rise or construction slows. Conversely, during a recovery phase the industry quickly rehires workers and increases production. (See page 24-25 for a more detailed analysis of Montana's wood products industry.)

Consumer sentiment here in Montana also coincides with cyclic patterns of consumer sentiment nationwide. Montana consumer attitudes turned downward at the same time as the nationwide index. (More on this later.)

Comparable Recessions?

Some think business cycles are worse in Montana than nationwide. But this premise is hard to prove because we don't have comparable data for both. However, we do have figures for nonfarm labor income, the closest state-level approximation of GNP. Table 2 summarizes and compares six postwar recessions. We'll deal separately with the early 1980s recessions when Montana suffered more than the rest of the nation.

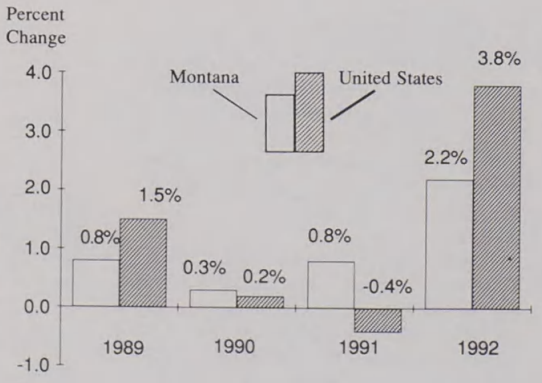
But look at the data for the other recessions. It's easy to see the downturns were less severe in Montana. In fact, in three of

Table 2
Percent Change in Nonfarm Labor Income, Peak to Trough

Recession	Montana	U.S.
1948, qtr. 4, to 1949, qtr. 2	*+4.7 %*	*-1.4 %*
1953, qtr. 2 to 1954, qtr. 2	*-1.7*	*-3.1*
1957, qtr. 3 to 1958, qtr.1	*-2.8*	*-3.3*
1960, qtr.1 to 1961, qtr.1	*-4.1*	*-0.7*
1969, qtr. 3 to 1970, qtr. 4	*+3.4*	*-0.3*
1973, qtr. 4 to 1975, qtr. 1	*-0.1*	*-4.8*

Source: U.S. Dept. of Commerce.

Figure 1
Nonfarm Labor Income
Actual and Projected
Montana and United States



Sources: The University of Montana, Bureau of Business and Economic Research; and Wharton Econometric Forecasting Associates.

the six cases, nonfarm labor income continued to grow despite the declines nationwide. For three other postwar recessions, declines in Montana were well below the nationwide averages.

Over the long term, Montana's economy suffers its share of volatility. The extreme ups and downs of agriculture, for instance, are caused by variables like weather, insects, and prices -- not the national business cycle.

Short-term forecasts for Montana and the United States are shown in figure 1, with percentage changes projected for nonfarm labor income. Remember this is annual data, while the recession is forecast to be concentrated in the last quarter of 1990 and the first quarter of 1991. Notice both United States and Montana annual growth rates are projected to decline in 1990 and 1991. Recovery should be in full swing by 1992.

The recession should be milder in Montana than nationwide. National nonfarm labor income is projected to decline slightly in 1991 while the figure inches up in Montana. In 1992, Montana's growth rate rebounds to 2.2 percent, while the corresponding figure nationwide is expected to be 3.8 percent. In other words, by 1992 we are back to the traditional economic relationship where growth in Montana is less than the national average.

Recessions are short-run phenomena; impacts of the present one should be played out by 1992. Long-term trends, however, reflect the structure of Montana's economy, and are determined by a very different set of factors.

Four Long-Term Indicators

Four indicators are used to gauge long-term trends in Montana's economy. They are:

- Population;
- Per capita income;
- Personal income;
- Nonfarm labor income.

Each indicator measures a different part of the economy. In the short run, one indicator may not coincide with trends in the other indicators. Taken together though, the four provide a good view of Montana's general economic condition.

Population

The recent U.S. Census of Population reported about 799,000 Montana residents in 1990, up from approximately 787,000 in 1980. As figure 2 clearly shows, Montana's population increased rapidly during the 1970s and continued to grow in the early 1980s. The state's population peaked in 1985 at 825,000. From 1986 to 1988 the state saw sizable declines, but in the last two years of the decade Montana's population stabilized.

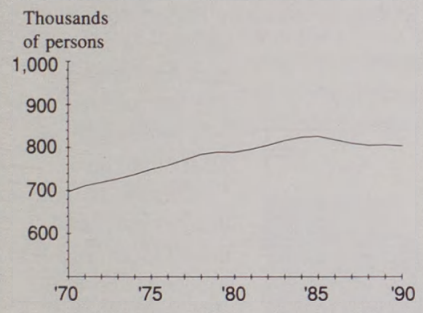
Per Capita Income

Per capita income is equal to total personal income divided by population. Per capita income is a measure of economic well-being; it shows how well off the average person is. To eliminate the effects of inflation, per capita income has been converted to constant 1989 dollars.

Figure 3 shows per capita income figures for Montana and the United States from 1970 to 1990 (the 1990 figure is a preliminary estimate). Notice Montana's per capita income remained relatively stable during the early 1980s. About 1986 it inched upward as population dropped; fewer people divvied up the income pie.

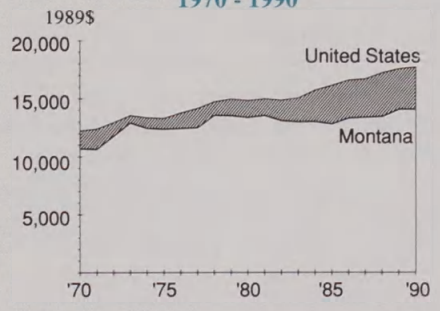
Per capita income in the United States continued upward throughout the last decade, while Montana's figure was stable and/or growing slowly. In 1980, the state's per capita income was 90 percent of the national average. By 1988, it hit a low of 78 percent. The years 1989 and 1990 saw some slight recovery

Figure 2
Population, Montana
1970 - 1990



Source: U.S. Department of Commerce, Bureau of the Census.

Figure 3
Per Capita Income
Montana and the United States
1970 - 1990



Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

"One of the few bright spots among Montana's basic industries is metal mining. It helped fuel the state's most recent period of modest growth (1987 to 1989)."

as Montana's per capita income rose to about 80 percent of the U.S. figure.

Thus, in the 1980s Montanans were less able to increase purchases of public and private goods and services -- candy bars, cars, health care, or environmental cleanups -- than were typical Americans in other states.

Nonfarm Labor Income and Personal Income

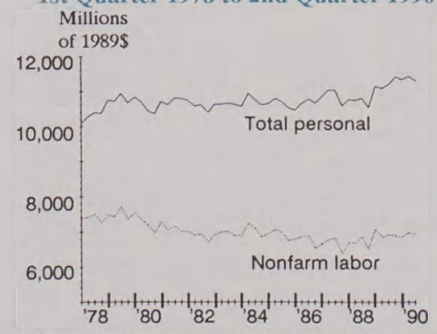
Nonfarm labor income is the wages and salaries, proprietors' income, and other labor income of all employed persons except those working on farms and ranches. Nonfarm labor income is used instead of GNP, which is available only for national economies. Changes in nonfarm labor income provide a measure of the changes in overall economic activity in a state or smaller area.

Figure 4 presents nonfarm labor income data from the first quarter of 1978 to the second quarter of 1990. Notice sharp declines from 1979 to 1982, corresponding to national recessions. As we mentioned earlier, these were the only recessions since World War II more severe in Montana than nationwide. Overall, nonfarm labor income decreased by more than 12 percent from 1979 to 1982 as Montana suffered from plant closures as well as the recession.

1983 and 1984 brought Montana a modest recovery. Nonfarm labor income increased about 8 percent from mid-1982 to early 1984. For the U.S. economy, this marked the beginning of sustained economic growth, a period which continued until the current recession.

Montana's economy turned downward again in late 1984 and 1985. Notice these declines were not as large as those earlier in the decade, and did not correspond to a recession in the U.S. economy. After hitting bottom about 1986, Montana's nonfarm labor income edged upward in 1987, 1988, 1989, and the first half of 1990. Increases averaged only about 1 percent per year, a "fragile recovery."

Figure 4
Total Personal Income & Nonfarm Labor Income, Montana
1st Quarter 1978 to 2nd Quarter 1990



Source: U.S Department of Commerce, Bureau of Economic Analysis.

Personal income includes income from all sources, and is closely related to consumer purchasing power. Because of the lack of reliable statistics for Montana's retail sales, personal income is one of the few measures of the state's consumer activity.

As figure 4 shows, Montana's personal income remained relatively constant during the 1980s. Increases in transfer payments (primarily Social Security payments) and dividends, interest, and rents make up most of the growing gap between nonfarm labor income and personal income.

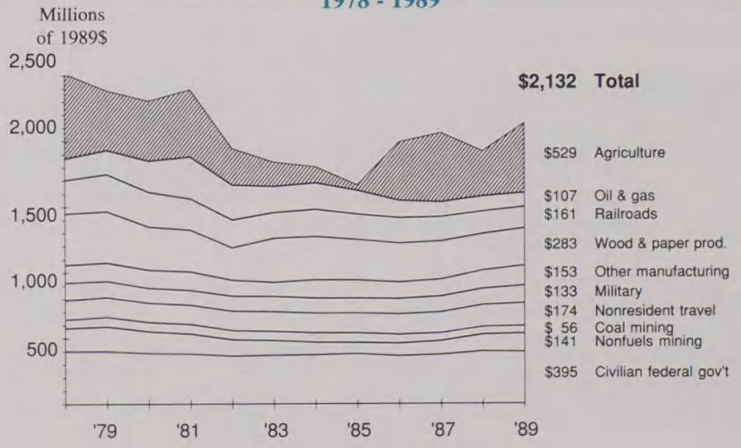
Back to Basics

Montana's economic growth is largely determined by activity in the basic industries. Basic industries are those which depend on markets outside the state or which are otherwise influenced by factors outside the state's borders. For Montana, the basic industries are primarily natural resource industries -- agriculture, mining, and wood and paper products. Other Montana basic industries include nonresident travel (tourism), the federal government, railroads, and certain types of manufacturing. Basic industry workers' labor income represents new funds injected into Montana's economy. New funds create additional income as they are spent and respent in the state.

Derivative industries, by contrast, primarily serve the local population. Examples of derivative industries include retail trade, services, and local government.

Basic industries are best analyzed in terms of labor income rather than employment, output, or production because the amount of basic industry income earned and spent in a local area is what effects the economy, not necessarily the number of basic workers, the board feet of timber, or the ounces of gold produced. Moreover, it makes little difference whether $30,000 of basic labor income represents the salary of one worker, or the incomes of two workers each earning $15,000 because aggregate new dollars are what count here.

Figure 5
Labor Income in Basic Industries
Montana
1978 - 1989

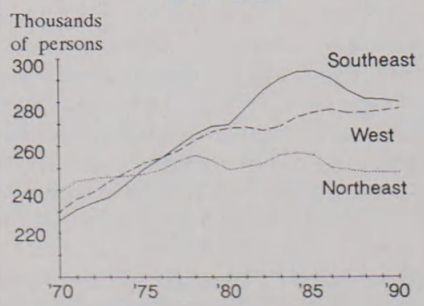


Sources: U.S. Department of Commerce, Bureau of Economic Analysis and The University of Montana, Bureau of Business and Economic Research.

Changes in basic industries may have driven recent trends in Montana's economy. But these changes don't provide a complete explanation for every blip and squiggle in the state's growth rate, nor are they the only cause of trends in the derivative industries. National factors rather than local changes may affect the derivative industries. For instance, Montana's health care industry appears to be growing independently of the basic industry trends in local economies.

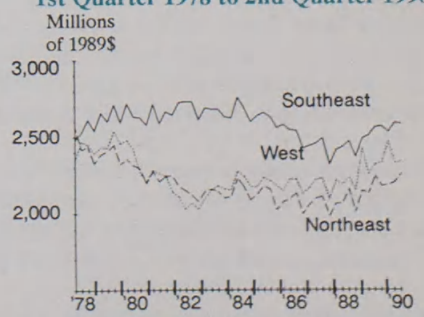
One more caution: Our analyses are based on the best available data, but are not necessarily accurate to the last cent. Data

Figure 6
Population
Montana's Multicounty Regions
1970 - 1990



Source: U.S. Department of Commerce, Bureau of the Census.

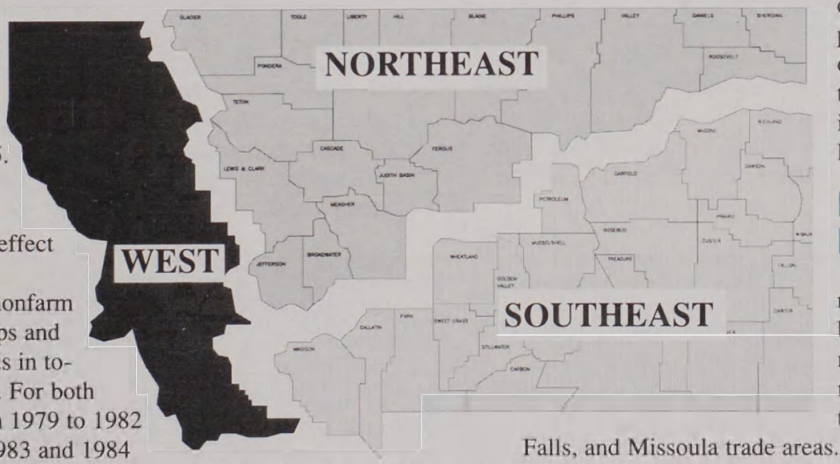
Figure 7
Nonfarm Labor Income
Montana's Multicounty Regions
1st Quarter 1978 to 2nd Quarter 1990



Source: The University of Montana, Bureau of Business and Economic Research.

we use may reflect different reporting periods; personal income and nonfarm labor income are reported quarterly, for instance, while labor income data for the basic industries is reported annually. Also, complete information was not available for some basic industries, so we were forced to make a few "ballpark" estimates. Figure 5 shows Montana's basic industry labor income over the period 1978 to 1989. To eliminate the effects of inflation, the data has been converted to constant 1989 dollars. We've presented total basic labor income as well as figures for each industry for the year 1989.

To get some idea of agricultural labor income's extreme volatility and its potentially distorting effect on total basic labor income, see figure 5. Clearly visible are the effects of back-to-back droughts in 1984 and the effect of 1988's milder drought.



Looking at totals for nonfarm basic industries, we see ups and downs which mirror trends in total nonfarm labor income. For both measures, the period from 1979 to 1982 brought sharp declines; 1983 and 1984 saw increases; renewed declines occurred in 1985 and 1986; and finally 1987, 1988, and 1989 brought modest growth.

One of the few bright spots among Montana's basic industries is metal mining. It helped fuel the state's most recent period of modest growth (1987 to 1989). Both employment and the value of metal mining production increased significantly over the past few years. Modest rises in other manufacturing, military, and nonresident travel also contributed to the recent recovery. This growth counterbalanced declines in railroads and oil and gas.

The period 1979 to 1982 saw widespread declines among Montana's basic industries. Permanent shutdowns -- such as the Milwaukee Railroad and the smelters in Anaconda and Great Falls (which were classified in Other manufacturing) devastated some sectors of the economy. Cyclic declines hit wood products and other basic industries. A peak year for oil and gas exploration (1981) moderated overall decreases somewhat.

A number of basic industries, especially wood and paper products, turned upward in the short recovery of 1983 and 1984. But their gains were moderated by declines in oil and gas and railroads.

The state's economy turned down again in 1985, due to a continued freefall in oil and gas activity combined with moderate decreases in wood and paper products, other manufacturing, and railroads. Labor income in other basic industries remained relatively stable.

Over the 1980s, Montana's economy was dominated by declines in basic industry labor income. But losses in labor income for an industry do not necessarily mean that industry is reducing output or production. In fact many of Montana's basic industries were in the midst of structural and technological change during the 1980s, or were reacting to different market or regulatory conditions.

New capital investments and other innovations increased the productivity of workers (and hence, reduced their aggregate labor income). Until recently, for example, the wood products industry was regularly posting all-time highs of output and production with ever declining employment and labor income.

Regional Differences

As shown in the map, Montana has been divided into three multicounty regions, roughly corresponding to the Billings, Great Falls, and Missoula trade areas. Analyzing data for each region allows us to gauge general trends in broad areas of the state, and is a starting point for identifying how recessions affect different parts of the state.

The population data in figure 6 show regional divergence from statewide trends examined earlier. In the 1970s, the Southeast and the West grew at very similar rates, while the Northeast remained relatively stable. In the 1980s, the West region's population remained relatively stable from 1979 to 1982, grew slowly in 1983 and 1984, and then stabilized again until 1990. The Northeast's population increased slowly in 1981 and 1982, stabilized in 1983-1984, and has declined since 1985 -- although the downward trend moderated toward the end of the decade.

During the 1980s, the Southeast region mirrored the state's population trends. Comparing figures 6 and 7, we see that the statewide poulation increases, the peak in 1985, and the subsequent declines are all mirrored in the data for the Southeast.

Regional differences in sensitivity to national recession are clearly charted by nonfarm labor income. As shown in figure 7, both the West and the Northeast experienced significant declines from 1980 to 1982, while the Southeast remained relatively stable. The West's decreases were caused primarily by the cyclicially sensitive wood products industry, which is concentrated in that part of the state. Some of the Northeast's 1980-82 declines can be attributed to the recession, but other events,

such as the closure of the smelter in Great Falls, had a greater impact. Cyclic impacts were minimal in the Southeast; nonfarm labor income remained stable or even grew slightly during the recession years of 1980, 1981, and 1982.

The Southeast did experience a slow downward trend in nonfarm labor income from 1984 to 1987, primarily due to decreases in the oil and gas industry, which is concentrated there. Some oil and gas activity also occurs in the Northeast, which may explain that region's more modest declines.

Montana's Major Urban Areas

Because of our emphasis on the current recession, we do not have space to discuss in detail each of Montana's urban areas. We will, however, present the data for the general economic indicators and the basic industries. We will also provide a few brief comments concerning important trends in each urban area with emphasis on how they have been affected by earlier recessions.

For each of Montana's major urban areas we will present data for general economic indicators and the basic industries. We will also provide a brief summary of the important trends in each urban area.

Population

Based on the data presented in table 3, the population trends in Montana's seven major urban areas may be placed into three categories:

1) **Declines.** The population of the Butte-Anaconda area (Butte-Silver Bow and Anaconda-Deer Lodge counties) decreased from 50,600 in 1980 to 43,200 in 1988.

2) **Stability.** The populations of Missoula and Cascade counties were relatively unchanged. Missoula County grew by about 2,300 persons between 1980 and 1988, while Cascade County declined by about 2,500 persons during the same period.

3) **Decelerating growth.** Flathead, Yellowstone, Gallatin, and Lewis and Clark counties all experienced population growth in

Table 3

Population and Components of Change, 1980 - 1990

Lewis and Clark County

	Population	Births	Deaths	Est. Net. Migration
1980	43,000	700	300	N.A.
1981	43,900	800	300	400
1982	44,300	800	400	0
1983	45,200	800	300	400
1984	45,800	800	300	200
1985	46,100	800	400	-200
1986	46,400	700	300	-100
1987	47,200	700	400	500
1988	47,000	700	400	-500
1989	47,200	700	400	-100
1990	47,500	700	300	-100

Yellowstone County

	Population	Births	Deaths	Est. Net. Migration
1980	108,000	1,900	700	N.A.
1981	110,200	1,800	800	1,100
1982	113,400	1,900	800	2,200
1983	116,300	1,800	700	1,800
1984	118,800	1,900	800	1,400
1985	120,500	1,900	800	600
1986	120,100	1,900	800	-1,500
1987	118,000	1,700	800	-3,000
1988	116,400	1,600	800	-2,400
1989	114,900	1,600	800	-2,300
1990	113,400	1,600	900	-2,200

Gallatin County

	Population	Births	Deaths	Est. Net. Migration
1980	42,900	700	300	N.A.
1981	43,900	700	200	600
1982	45,300	700	300	900
1983	46,200	700	200	500
1984	47,600	800	200	900
1985	47,800	700	300	-400
1986	48,800	700	200	600
1987	48,500	700	300	-700
1988	48,500	700	200	-400
1989	49,500	700	200	500
1990	50,500	700	300	600

Butte-Silver Bow and Anaconda-Deer Lodge Counties

	Population	Births	Deaths	Est. Net. Migration
1980	50,600	800	700	N.A.
1981	49,600	600	700	-1,100
1982	48,200	600	500	-1,300
1983	47,600	500	600	-700
1984	46,400	600	500	-1,100
1985	45,600	600	600	-900
1986	44,100	600	500	-1,500
1987	43,600	500	500	-500
1988	43,200	600	600	-400
1989	43,700	600	600	500
1990	44,200	600	500	600

Missoula County

	Population	Births	Deaths	Est. Net. Migration
1980	76,000	1,400	500	N.A.
1981	76,400	1,400	500	-500
1982	75,200	1,300	500	-2100
1983	75,400	1,200	500	-600
1984	76,500	1,300	500	400
1985	77,300	1,300	500	0
1986	77,700	1,300	500	-400
1987	78,300	1,100	500	-100
1988	78,300	1,100	500	-600
1989	78,500	1,100	500	-400
1990	78,700	1,200	500	-500

Flathead County

	Population	Births	Deaths	Est. Net. Migration
1980	52,000	900	400	N.A.
1981	52,200	900	400	-300
1982	52,300	900	400	-400
1983	53,300	900	400	500
1984	55,400	1,000	500	1,600
1985	57,300	900	500	1,400
1986	58,300	900	500	600
1987	58,000	900	400	-800
1988	58,600	800	500	300
1989	58,900	800	500	0
1990	59,200	800	500	0

Cascade County

	Population	Births	Deaths	Est. Net. Migration
1980	80,700	1,500	600	N.A.
1981	80,100	1,500	600	-1,500
1982	80,100	1,300	600	-900
1983	81,100	1,400	700	300
1984	80,800	1,400	600	-1,000
1985	80,400	1,400	600	-1,100
1986	79,400	1,400	600	-1,800
1987	78,300	1,300	600	-2,000
1988	78,200	1,300	600	-800
1989	78,000	1,300	600	-900
1990	77,700	1,400	600	-1,100

Sources: U.S. Department of Commerce, Bureau of the Census; Montana Department of Health; and The University of Montana, Bureau of Business and Economic Research.

Notes: N.A. denotes not available. Details may not add due to rounding.

the 1980s. In each city, however, the rates of increase have moderated. Each county has experienced population declines during at least one of the past few years.

Other General Indicators

Quarterly data for personal income and nonfarm labor income are presented for each community, along with annual figures for labor income in each of the basic industries. In addition to the traditional basic industries --such as mining and wood products -- we have also presented estimates of the labor income associated with trade center activities. These figures represent the labor income attributable to persons from the surrounding rural areas who come to the cities to shop, see a doctor or dentist, obtain financial services or advice, or conduct other business. The figures also incorporate wholesale and other businesses that serve adjacent areas. Trade center labor income figures should be interpreted cautiously because they are "ballpark" estimates derived using indirect methods.

No labor income for trade center activities is shown for Flathead County and the Butte-Anaconda area. Although certain firms in these communities serve nonresidents, locals shop elsewhere often enough to counterbalance the influx of nonresidents.

The relationship between basic industries and other economic indicators is not always precise and easy to see. The relationship may be especially ambiguous for sub-units of the state's economy, because data for smaller areas may be subject to greater error. In addition, annual data for the basic industries terminate with 1987, while quarterly figures for personal income and nonfarm labor income extend to mid-1990.

Lewis and Clark County

As in the past, the current recession probably will not have significant impacts on Helena's economy. For the last national downturn (1981-1982), Lewis and Clark County personal income and nonfarm labor income data do not display cyclic ups and downs.

The county's stability isn't hard to figure. The two largest components of its economic base are state and federal government, both of which are traditionally noncyclic.

However, labor income in the basic industries reveals some important trends in the Helena economy which are concealed by its overall stability. State government's downward trend during the late 1980s was due largely to a pay freeze for state workers. Growth in trade center activities was fueled by Helena's emergence as a medical and financial center. And the opening of a gold mine near Helena led to an upturn in agriculture and mining.

Yellowstone County

Based on past trends, the current recession will be relatively mild in Billings, but it will not go unnoticed. Looking back to 1980-82, we see that the cyclic declines in nonfarm labor income were small, but they were definitely present.

A much more significant downturn for the Billings area began in 1984 and continued through 1988. Refer to data for basic industries and you can see why: Decreases in food products (meat packing) and oil and gas (mining). The nonfarm labor income data for 1989 and 1990 show increases, but these figures are still preliminary and could be revised.

Billings remains the state's largest trade center. Trade center industries account for about 40 percent of its economic base.

Figure 8
Total Personal Income & Nonfarm Labor Income
Lewis and Clark County
1st Quarter 1978 to 2nd Quarter 1990

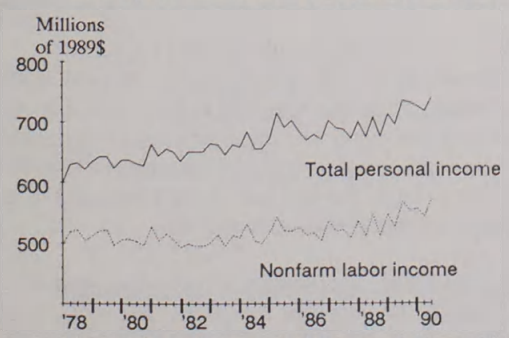
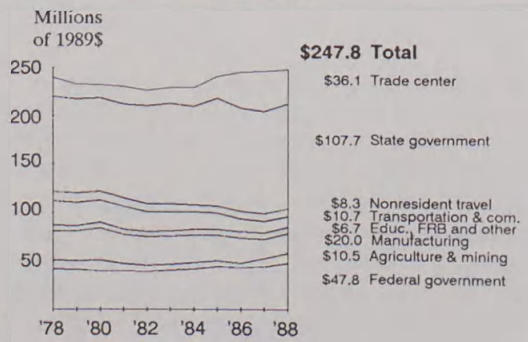
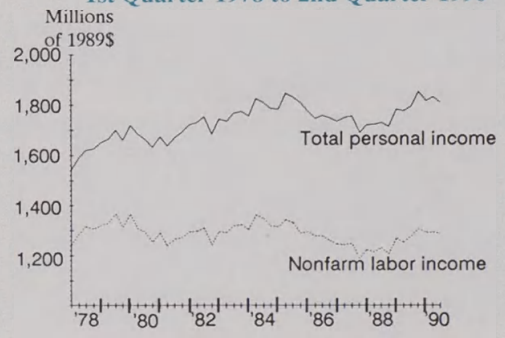


Figure 9
Labor Income in Basic Industries
Lewis and Clark County
1978 - 1988



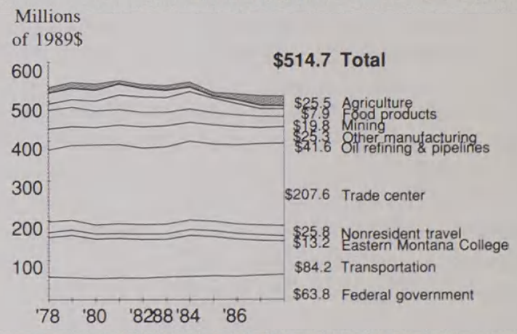
Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

Figure 10
Total Personal Income & Nonfarm Labor Income
Yellowstone County
1st Quarter 1978 to 2nd Quarter 1990



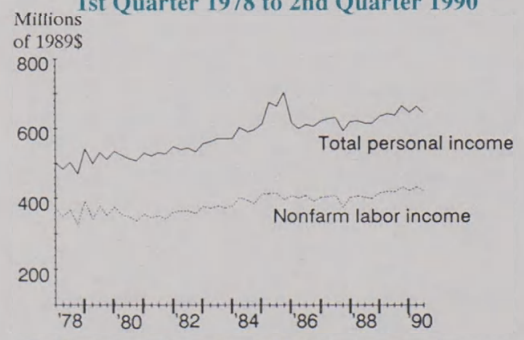
Source: The University of Montana, Bureau of Business and Economic Research.

Figure 11
Labor Income in Basic Industries
Yellowstone County
1978 - 1988



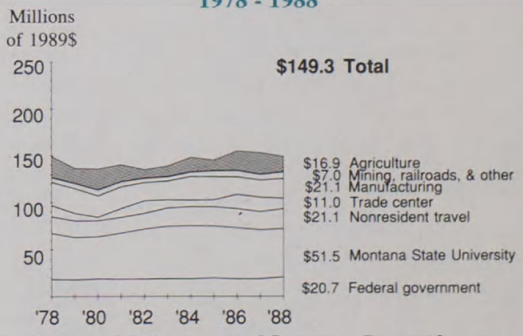
Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

Figure 12
Total Personal Income & Nonfarm Labor Income
Gallatin County
1st Quarter 1978 to 2nd Quarter 1990



Source: The University of Montana, Bureau of Business and Economic Research.

Figure 13
Labor Income in Basic Industries
Gallatin County
1978 - 1988



Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

Gallatin County

Like Helena, the Bozeman area economy does not have a history of cyclic ups and downs. After experiencing minor volatility in 1979 and 1980, both nonfarm labor income and personal income grew steadily during the recession years of 1981 and 1982, and they continued upward until 1985. Both personal income and nonfarm labor income have been stable since 1985.

The reason's easy to see: None of Gallatin County's largest basic industries are cyclic. Montana State University accounted for about 34.4 percent of the economic base in 1988. Corresponding figures for other basic industries were nonresident travel 14.1 percent; federal government 12.1 percent; manufacturing 11.6 percent; and agriculture 11.4 percent.

Bozeman's growth spurt from 1981 to 1985 and the stability that followed also can be traced to basic industries. Both Montana State University and manufacturing (which includes several high tech firms and top end sporting good businesses) were increasing during the first half of the 1980s, and have been stable or declining slowly since 1985.

Butte-Silver Bow, Anaconda-Deer Lodge Counties

Traditionally, national recessions have meant hardship for the Butte-Anaconda area, primarily because the local economy was dominated by one cyclically-sensitive employer, the

Anaconda Company.

The Anaconda Company's demise was primarily responsible for the area's economic declines between 1979 and 1986, when nonfarm labor income dropped by one-third and personal income decreased 15 percent. The Butte-Anaconda economy reached bottom in 1987 and 1988. We do not know how sensitive current mining operations (which began in 1988) are to national business cycles.

Butte-Anaconda has a more diverse economy now than in the past. Currently, the Montana Power Company and its subsidiaries are the largest component of the area's economic base, followed by the Montana College of Mineral Science and Technology, and Warm Springs State Hospital. Increases in activity for 1989 and 1990 should be interpreted with caution. The data is still very preliminary and may be revised -- but the trend appears upward.

Missoula County

Missoula's economy may be in for a rough ride in the current recession because its largest basic industry, wood products, is a direct conduit of national business cycle trends. Notice the 1980-82 recessions -- clearly visible in the data for Missoula County. The wood products industry leads Missoula's economy into cyclic downturns, but also provides positive stimuli when the U.S. economy begins to recover.

Basic labor income for trade center activities has increased significantly since 1986, making this sector the second largest component of Missoula's economic base. Most of the recent increases appear to be in health care -- that is, nonresidents coming to Missoula for treatment. As mentioned elsewhere though, health care activity may not continue to grow as rapidly as in the past.

Figure 16
Total Personal Income & Nonfarm Labor Income
Missoula County
1st Quarter 1978 to 2nd Quarter 1990

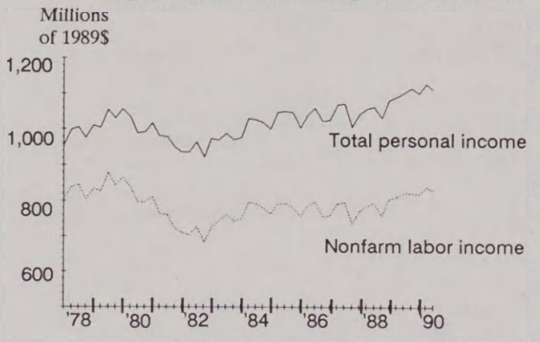
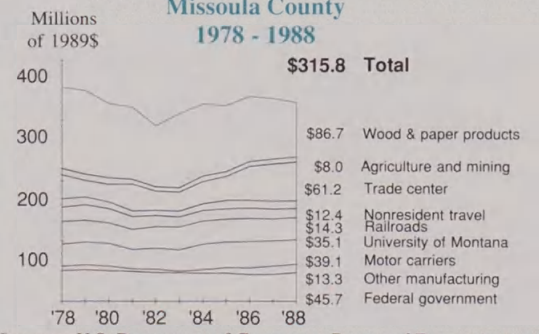
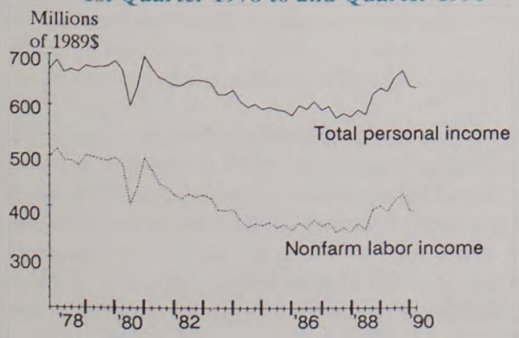


Figure 17
Labor Income in Basic Industries
Missoula County
1978 - 1988



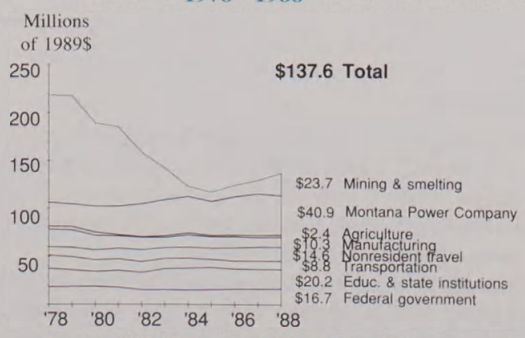
Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

Figure 14
Total Personal Income & Nonfarm Labor Income
Butte-Silver Bow and Anaconda-Deer Lodge Counties
1st Quarter 1978 to 2nd Quarter 1990



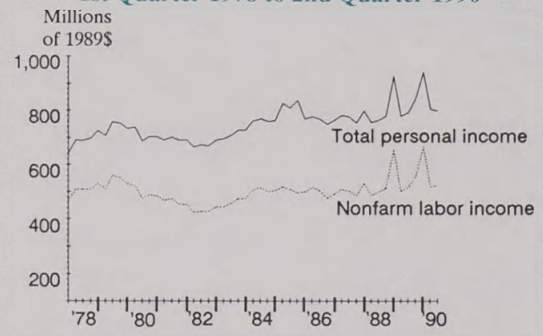
Source: The University of Montana, Bureau of Business and Economic Research.

Figure 15
Labor Income in Basic Industries
Butte-Silver Bow and Anaconda-Deer Lodge Counties
1978 - 1988



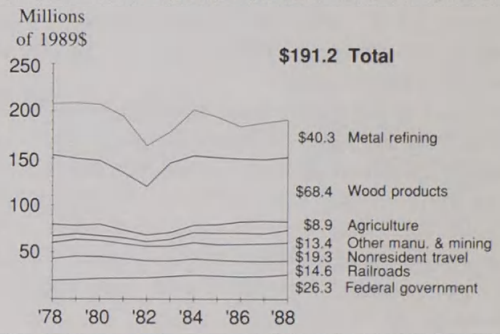
Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

Figure 18
Total Personal Income & Nonfarm Labor Income
Flathead County
1st Quarter 1978 to 2nd Quarter 1990



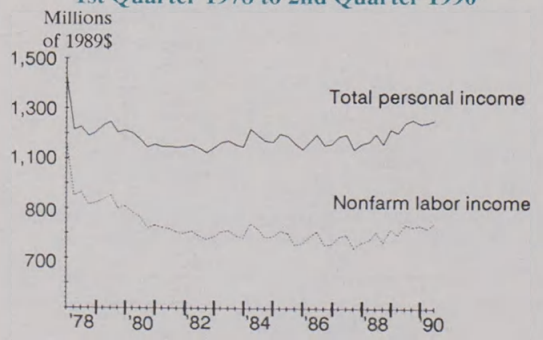
Source: The University of Montana, Bureau of Business and Economic Research.

Figure 19
Labor Income in Basic Industries
Flathead County
1978 - 1988



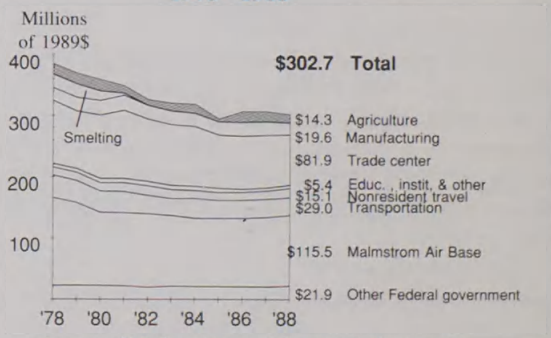
Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

Figure 20
Total Personal Income & Nonfarm Labor Income
Cascade County
1st Quarter 1978 to 2nd Quarter 1990



Source: University of Montana, Bureau of Business and Economic Research.

Figure 21
Labor Income in Basic Industries
Cascade County
1978 - 1988



Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and The University of Montana, Bureau of Business and Economic Research.

Flathead County

If history is a reliable guide, the current recession may also hit hard in Flathead County. Wood products and primary metals refining are the area's two largest basic industries, and both have cyclic histories, with significant declines and recoveries during the recessionary period of the early 1980s.

Spikes in nonfarm labor income and personal income during 1987, 1988, and 1989 were due mostly to lump sum wage bonuses paid workers at the Columbia Falls Aluminum Company. Data for basic industries are annual averages, so wage bonus spikes don't show in those figures.

Cascade County

The current recession probably will not have a significant impact on Cascade County, although if we look too quickly at the historic data, we might think so. Early in the 1980s, right during the last recession, Cascade County did experience sizable declines in nonfarm labor income and basic labor income. However, these declines were caused by the closure of Anaconda's refinery and the departure of several units from Malmstrom Air Force Base.

Since 1982, the Great Falls area also has experienced slow but persistent decline in labor income associated with trade

center activities. This downward trend reflects long-term structural changes in trade relationships in and among the communities in north central Montana. (More about this in the *Quarterly's* Summer 1991 issue.)

Forecasts

Projections for Montana, the multicounty regions, and each of the major urban areas were prepared as part of the Economics Montana program, which is cosponsored by the Bureau of Business and Economic Research and U S West.

Forecasts presented here focus on the long-term, post-recession outlook for the period 1991-1993. Earlier material dealt with impacts of the current recession and forecasts for recovery.

National Outlook

The U.S. forecasts are presented in table 4. The WEFA Group believes that U.S. economic growth will be relatively slow in the early 1990s. WEFA projects a real GNP growth rate of about 2.7 percent for both 1992 and 1993. This rate is well above recession lows but still short of the late 1980s' 3 to 4 percent growth rates. Inflation will be about 3.4 percent in 1992 and 4.1 percent in 1993. Housing starts will average 1.3 to 1.4 million per year, also down significantly from the late 1980s. Interest rates will go up slightly from those of the 1986 to 1989 period.

Statewide Projections

Montana's nonfarm labor income is projected to increase about 2.0 percent per year, well below the national figure of 2.8 percent per year. Personal income is expected to grow in Montana but also at a lower rate than nationwide. The state's figure is 2.0 percent per year, compared to 2.8 percent per year for the nation.

Long-term statewide projections suggest a return to the situation that existed in the late 1980s when Montana did experience economic growth. Once again, though, the state's growth rate will be less than the national average.

Finally, turning to the major urban areas, the projected rates of growth for nonfarm labor income and personal income are presented in figure 24 and 25. Because substate forecasting is so new, we are even more cautious about these forecasts than the statewide projections.

We can divide the seven Montana cities into three groups. The fastest growing will be Flathead, Missoula and Gallatin counties. Then come Yellowstone and Lewis and Clark counties. Cascade County and Butte-Anaconda will be the slowest growing areas.

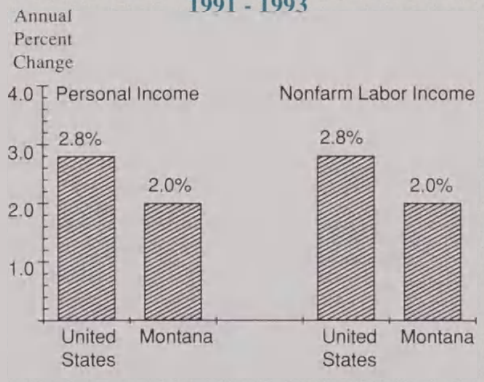
In making forecasts for the individual cities we took into account not only the likely trends in the basic industries, but also the role of the cities as trade centers. The growth of the health care industry is particularly important in several cities and we don't know how long this industry can continue to grow. □

Table 4
Economic Trends for the U.S. Economy
1987 - 1993
Actual and Projected as of December 1990

	Actual			Projected			
	1987	1988	1989	1990	1991	1992	1993
Real GNP percent change	3.4	4.5	2.5	1.0	0.6	2.7	2.7
Inflation (CPI) percent change	3.7	4.1	4.8	5.4	5.0	3.4	4.1
Interest rate, percent							
90-day T-Bills	5.8	6.7	8.1	7.5	6.7	7.3	7.6
Mortgage rate	9.3	9.3	10.1	10.0	9.5	9.8	10.3
Housing starts, millions	1.6	1.5	1.4	1.2	1.1	1.3	1.4
Unemployment rate, percent	6.2	5.5	5.3	5.5	6.5	6.4	6.2

Source: Wharton Econometric Forecasting Associates (December 1990).

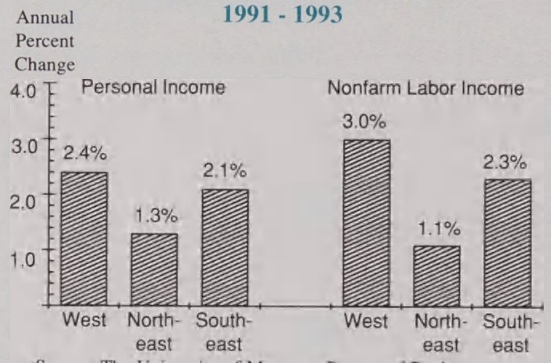
Figure 22
Projected Change in Personal Income and Nonfarm Labor Income
United States and Montana
1991 - 1993



Sources: Wharton Econometric Forecasting Associates; and The University of Montana, Bureau of Business and Economic Research, *Economics Montana.*

Note: Percent changes based on constant 1989 dollars.

Figure 23
Projected Change in Personal Income and Nonfarm Labor Income
Montana's Multicounty Regions
1991 - 1993



Source: The University of Montana, Bureau of Business and Economic Research, *Economics Montana.*
Note: Percent changes based on constant 1989 dollars.

Paul E. Polzin is director of the Bureau of Business and Economic Research and professor of management, School of Business Administration, The University of Montana.

Figure 24
Projected Change in Nonfarm Labor Income
Montana Urban Areas
1991 - 1993

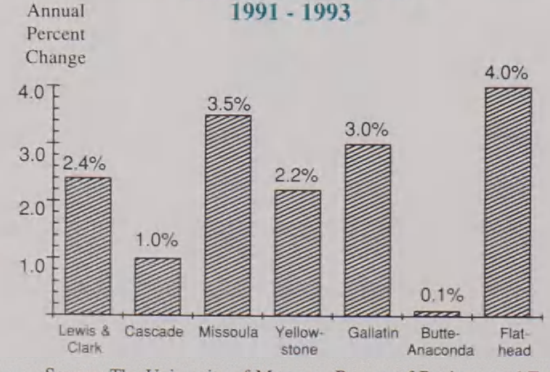
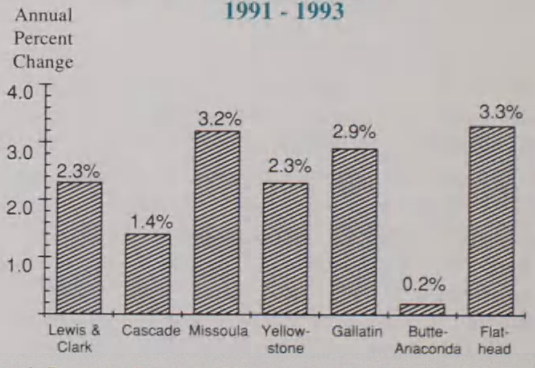
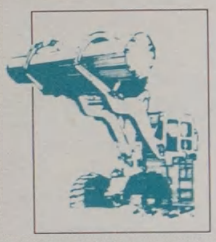
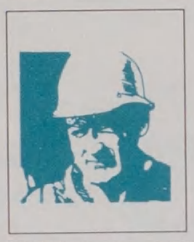


Figure 25
Projected Change in Personal Income
Montana Urban Areas
1991 - 1993



Source: The University of Montana, Bureau of Business and Economic Research, *Economics Montana.*
Note: Percent changes based on constant 1989 dollars.



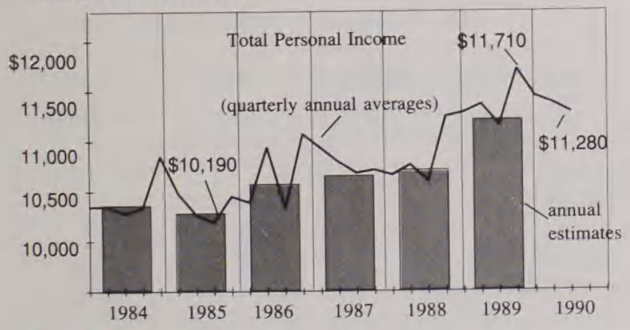


Montana Economic Indicators, 1984 - 90

Figures 1, 2, & 3

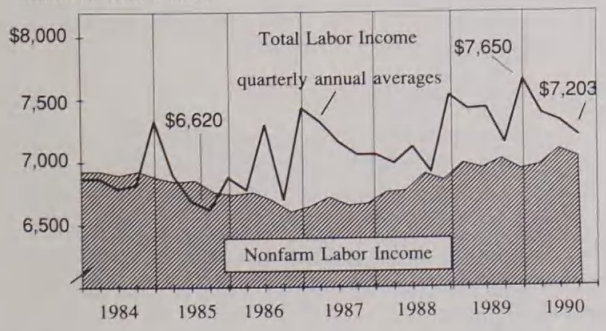
Personal Income

Millions of 1989 Dollars



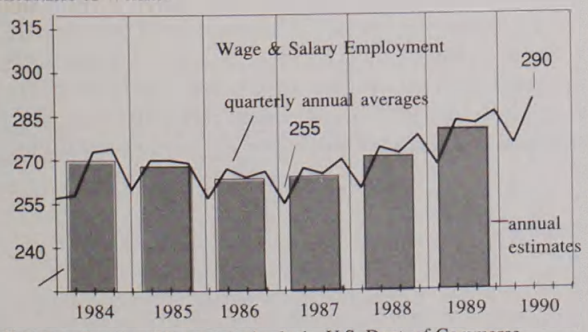
Labor Income

Millions of 1989 Dollars



Employment

Thousands of Workers



Sources: Bureau of Economic Analysis, U.S. Dept. of Commerce (personal income and labor income data adjusted for some RR omissions); Montana Dept. of Labor & Industry (employment data).

Montana's Natural Resource Industries

Recent Trends During an Improving Economy

by Larry D. Swanson

Before reviewing recent conditions in Montana's natural resource industries, recent trends in the state's economy as a whole will be briefly examined.

There is considerable conjecture on how the nationwide recession may affect economic conditions here in Montana. But it's worth noting that the state's economy has improved significantly in recent years. Total personal income has increased from as low as $10.2 billion in the third quarter of 1985 to as high as $11.7 billion in the fourth quarter of 1989 (see figure 1). On an annual basis after adjusting for inflation, state personal income has increased by 10 percent between 1985 and 1989.

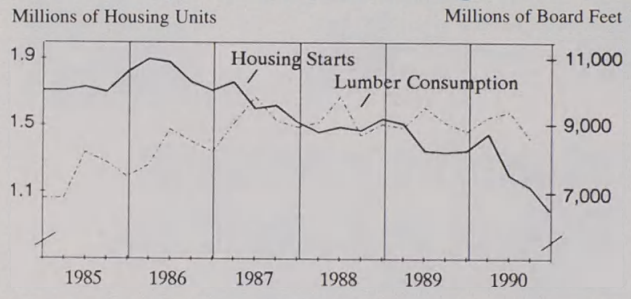
About 65 percent of state personal income is some form of labor income. Although volatile because of seasonal fluctuations in agricultural income, total labor income increased from a low of $6.6 billion in the third quarter of 1985 to nearly $7.7 billion in the fourth quarter of 1989 (figure 2). Nonfarm labor income has consistently increased since the third quarter of 1986.

About 75 percent of those employed in Montana are wage and salary employees. Wage and salary employment, which had fallen to 255,000 workers in the first quarter of 1987, rose to 290,000 in the second quarter of 1990. On an annual basis, wage and salary employment has increased each year since 1986.

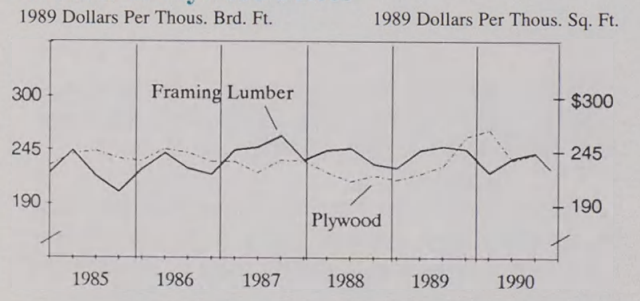
The state's economy has improved considerably in recent years from its mid-1980s doldrums. Total personal income in 1989 was a full $1 billion more than in 1985. Labor income improved by $636 million during the same four-year period. And total employment (both wage and salary employees and the self-employed) has increased by nearly 22,000 jobs since 1986. What role have the state's natural resource industries played in the state's economic improvement?

Figures 4, 5, 6 & 7

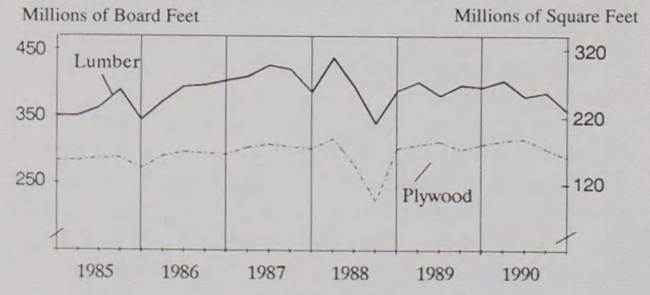
U.S. Housing Starts & Lumber Usage



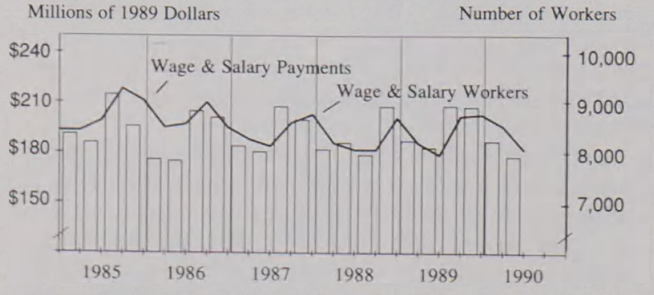
Lumber & Plywood Prices



Montana Wood Products Production



Montana Wood Products Employment



Sources: WEFA (housing starts); National Forest Products Association (lumber consumption, including net exports); *Random Lengths* Publications, Inc. (prices); Bureau of Business and Economic Research (state wood products production); and Montana Dept. of Labor and Industry (employment). Note: Wage and salary payments and employment are seasonally-adjusted annual averages for each quarter.

Wood Products

Nationwide Market and Price Conditions

U.S. lumber consumption is heavily influenced by the level of residential construction activity. Housing starts have declined steadily since 1986 and recently dropped to the lowest level since 1982 (see figure 4).

Many factors are cited for this slowdown: the downturn in the economy; sagging consumer confidence; and more restrictive mortgage financing. More fundamentally, the pace of housing construction reflects growth in the number of households. Many housing analysts, noting demographic shifts occurring in the U.S. population, predict a sustained fall off in housing construction. With declining or slow growing populations in virtually every age group except older ones, housing construction has weakened and is expected to remain weak for some time.

Wharton Economic Forecasting Associates (WEFA) is currently forecasting 1.0 to 1.2 million starts in 1991 and no more than 1.3 to 1.4 million starts in 1992 and 1993.

Adjusted for inflation, prices of framing lumber and plywood have been fairly stable in recent years (figure 5). However, prices fell substantially during the second half of 1990, reflecting declining demand.

Industry Activity in Montana

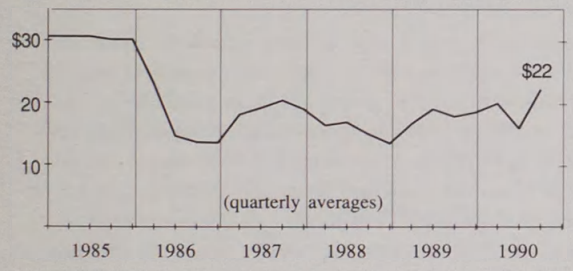
Lumber production in Montana gradually increased in 1986 and 1987, fell in 1988 in the midst of mill strikes, and remained below 1987 levels in both 1989 and 1990 (see figure 6). With the exception of the second and third quarters of 1988, plywood production in the state has been slowly increasing over time. However, production fell slightly during the second half of last year.

About 90 percent of those employed in lumber and wood products manufacturing in the state are wage and salary employees. Although employment fluctuates considerably on a seasonal basis, the last five or six years have been relatively stable ones. Measured in constant dollars, wage and salary payments received by these workers have declined modestly since the second half of 1985. More pronounced losses are expected as the fall off in housing activity impacts the industry.

Figures 8, 9, 10, & 11

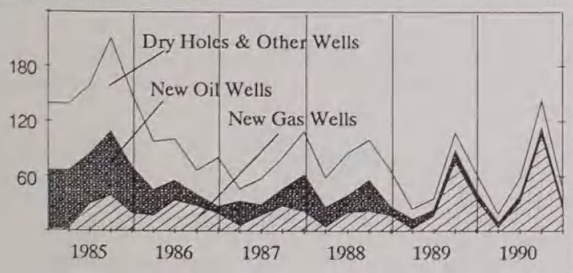
U.S. Crude Oil Price

1989 Dollars Per Barrel



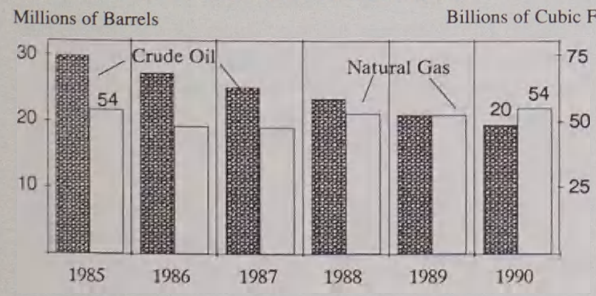
Oil and Gas Drilling in Montana

Number of Wells Drilled



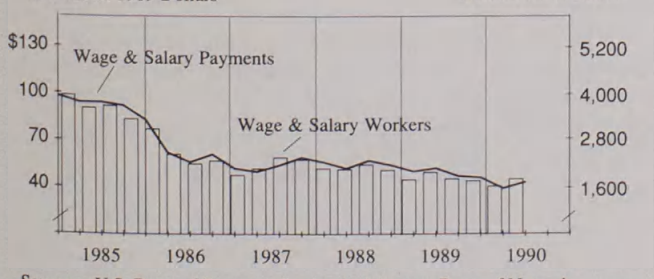
Oil and Gas Production in Montana

Millions of Barrels — Billions of Cubic Feet



Montana Exploration & Production Employment

Millions of 1989 Dollars — Number of Workers



Sources: U.S. Dept. of Energy (oil prices); Montana Dept. of Natural Resources & Conservation (drilling & production); and Montana Dept. of Labor & Industry (employment).

Note: Wage and salary payments and employment are seasonally-adjusted annual averages for each quarter.

Oil and Gas Exploration and Production

Trends in Crude Oil Prices

The dominant factor influencing oil and gas exploration activity in the United States is the level of crude oil prices. Oil prices collapsed in 1986 and remained at relatively low levels until the Iraqi invasion of Kuwait in August (see figure 8). After the invasion, crude prices shot up, but then waned as expectations of a short war in the Gulf grew. Forecasts of crude oil prices in coming months are wide-ranging, largely reflecting differing expectations on the future course of events in the Gulf.

When crude oil prices plunged in 1986, oil and gas drilling in the United States fell from nearly 70,000 wells in 1985 to 39,000 in 1986. As oil prices slumped, nationwide drilling fell to almost 28,000 wells in 1989, a drop of over 70 percent in only four years. Drilling activity remains at very low levels with considerable uncertainty on the future direction of oil prices.

Industry Activity in Montana

Drilling activity in Montana mirrors trends nationally, falling from 640 wells in 1985 to 242 in 1989, a 77 percent decline. However, evidence over the last two years suggests that oil and gas producers are showing more interest in the development of the state's natural gas reserves (see figure 9).

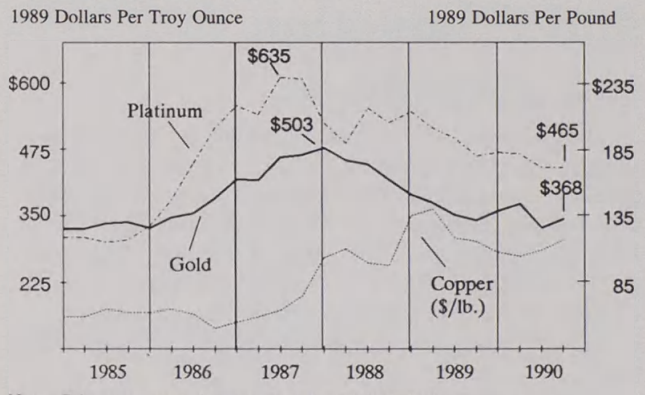
Oil production in Montana, which peaked in 1968, has been gradually declining for years. This decline has accelerated in recent years, with production falling by a third in just the last five years (see figure 10). By contrast, gas production has been fairly stable or increasing since the mid-1970s and totaled 55 billion cubic feet last year, up slightly from the year before.

About 85 to 90 percent of those employed in oil and gas exploration and production in the state are wage and salary workers. Industry employment has dropped considerably from highs in the early 1980s. Employment has continued to fall since 1985, dropping from over 3,600 workers in the first quarter of 1985 to as few as 1,500 workers in the first quarter of 1990 (see figure 11).

If oil prices stabilize at over $20 a barrel and natural gas marketing opportunities improve for state gas producers, exploration activity in Montana should gradually improve.

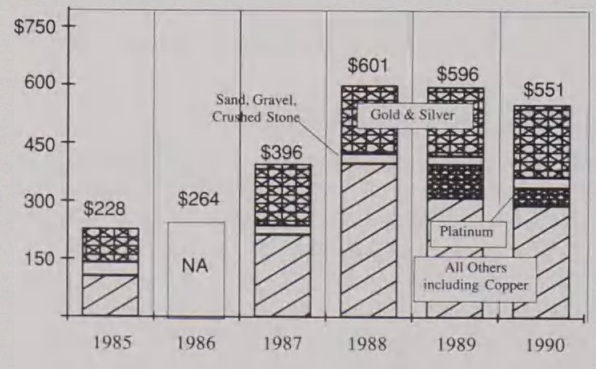
Figures 12, 13 & 14

U.S. Metal Prices

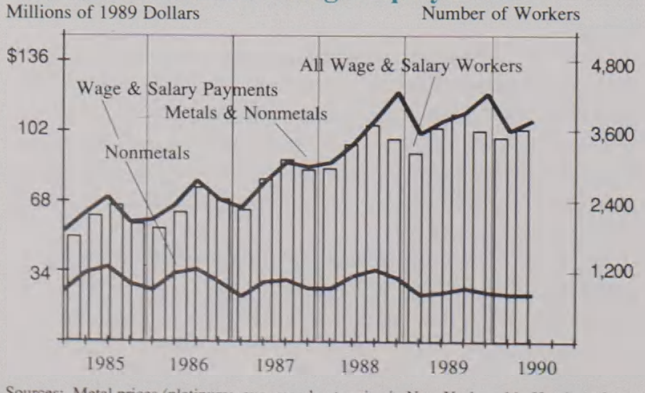


Note: Prices are quarterly averages adjusted for inflation.

Value of Montana Nonfuel Mineral Production



Montana Nonfuels Mining Employment



Sources: Metal prices (platinum: ave. merchants price in New York; gold: Handy and Harman at New York; copper: producers' price of electrolytic wirebar copper), Bureau of Mines; U.S. Dept. of Interior (value of minerals production); and Montana Dept. of Labor & Industry (employment). Note: Wage and salary payments and employment are seasonally-adjusted annual averages for each quarter.

Nonfuel Mineral Mining

Trends in Metal Prices

Significant improvements in metal prices provided the impetus for a major recovery of Montana's nonfuel mineral mining industry in recent years. Platinum prices nearly doubled in 1986 and 1987. Gold prices increased nearly 50 percent. Copper prices, after years at low levels, increased sharply in 1987 and 1988 (see figure 12). However, prices of most metals have fallen considerably in the last two years.

What may happen to metal prices in the future is highly speculative. For precious metals such as gold, prices could go higher in the midst of a recession as investors seek a haven during uncertain times. But this hasn't happened yet. Platinum prices are sometimes linked to gold prices, even though platinum is largely an industrial metal. Prices of industrial metals (including copper) usually follow the general direction of economic activity.

Industry Activity in Montana

As metal prices markedly increased in 1986 and 1987, so did activity in Montana's nonfuel mineral mining industry. The value of nonfuel mineral production more than doubled between 1986 and 1988. During this period, the value of gold and silver mined in the state increased from $87 million to $176 million. The Stillwater Mining Company's platinum-palladium mine came on line in 1987 and produced $85 million worth of metal concentrate in 1989. However, as metal prices have declined more recently, growth by the industry has moderated and the value of production has declined slightly (see figure 13).

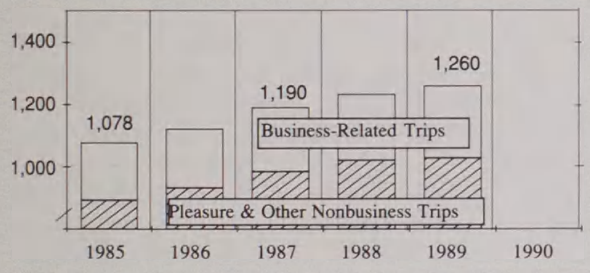
About 80 to 90 percent of those employed in the nonfuel mineral mining industry in Montana are wage and salary employees. Since 1985, industry employment has grown steadily, particularly in 1987 and 1988 when metal mining employment doubled. Wage and salary payments to these workers increased steadily, but this growth now appears to be moderating.

While the fast growth of recent years isn't expected to continue, several new mines and additional expansion at some existing mines in the state is expected in the next few years. Future growth in the industry depends upon evolving trends in metal prices.

Figures 15, 16, 17 & 18

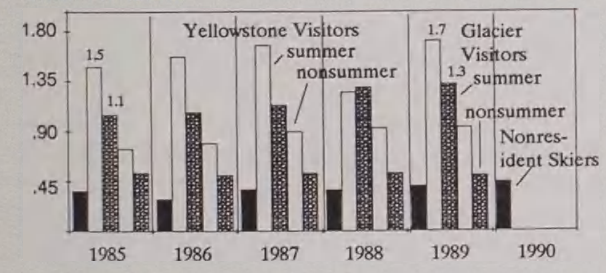
U.S. Travel Activity

Millions of Person--Trips



National Park & Montana Ski Visitors

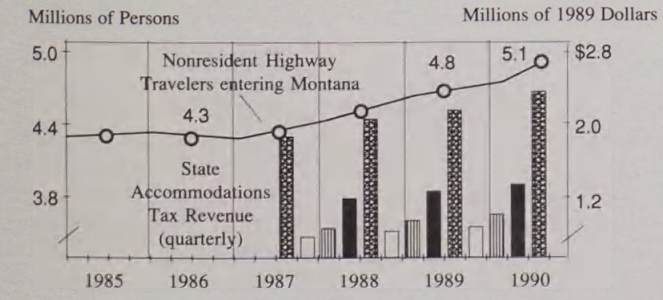
Millions of Visitors



Nonresident Visitors to Montana

Millions of Persons

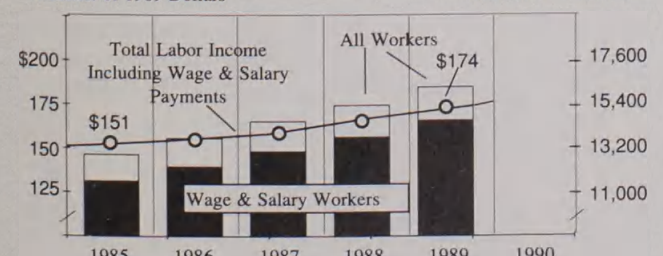
Millions of 1989 Dollars



Montana Nonresident Travel Employment

Millions of 1989 Dollars

Number of Workers



Sources: U.S. Travel Data Center, Washington, D.C. (person-trips); U.S. National Park Service (national park visits); U.S. Forest Service & Institute for Tourism & Recreation Research (ITRR), University of Montana (nonresident ski visits), Montana Dept of Commerce (accommodations taxes); Montana Dept. of Highways & ITRR (nonresident highway travelers); and Bureau of Business and Economic Research, University of Montana (employment).

Nonresident Travel

Nationwide Travel Activity

The U.S. travel industry is diverse and growing. The estimated number of "person-trips" (number of people involved in individual trips at least 100 miles from home) in the United States is steadily increasing (see figure 15). About 80 percent of this travel activity involves pleasure or nonbusiness trips; the remaining 20 percent is associated with business travel.

Travel-Related Activity in Montana

Much of Montana's nonresident travel and tourism industry is associated with vacationers and recreationists visiting the state's spectacular scenery and recreational resources. A variety of indicators shows activity in this sector of the state's economy. Counts of summer and nonsummer visitors to Yellowstone and Glacier National Parks show a pattern of steady growth (with the exception of Yellowstone during the 1988 fires). Summer visitors increased by 15 percent for Yellowstone and 26 percent for Glacier between 1986 and 1989 (see figure 16). Nonresidents visiting Montana's major ski areas are gradually increasing as well, reaching a record 445,000 last ski season.

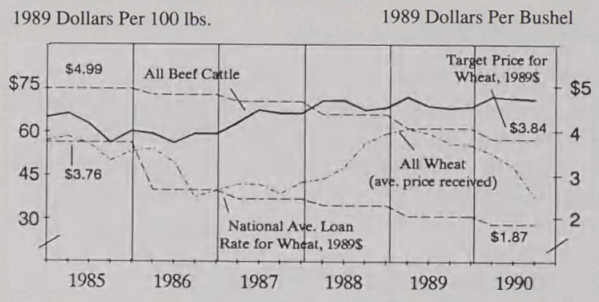
The number of nonresidents entering Montana by highway grew from 4.3 million persons in 1986 to 5.1 million last year, an increase of nearly 19 percent. The state's accommodations tax, instituted in 1987, is generating increasing revenues. For summer months only, revenues rose from $1.86 million in 1987 to $2.32 million in 1990, a 25 percent increase in inflation-adjusted dollars.

Reflecting these trends, estimated employment in Montana's nonresident travel industry has grown from 12,600 full- and part-time workers in 1985 to over 15,700 in 1989, up nearly 25 percent. About 90 percent of this total is wage and salary employees. Labor income received by these workers in 1989 is estimated at $174 million, up 15 percent since 1985.

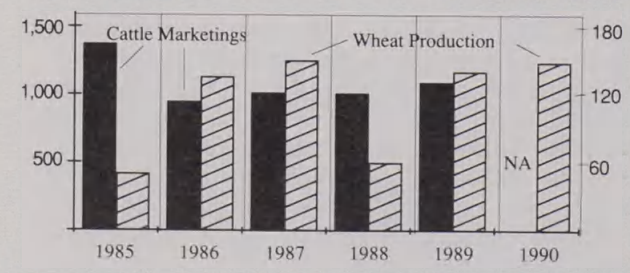
Sharp increases in oil prices translating into significantly higher gasoline prices would adversely affect nationwide travel activity, particularly for areas far removed from major population centers. However, continued growth in Montana's travel and tourism industry is expected.

Figures 19, 20, 21 & 22

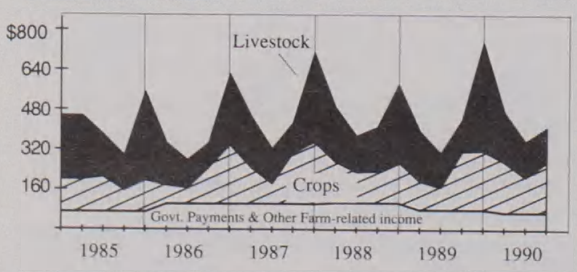
U.S. Cattle and Wheat Prices



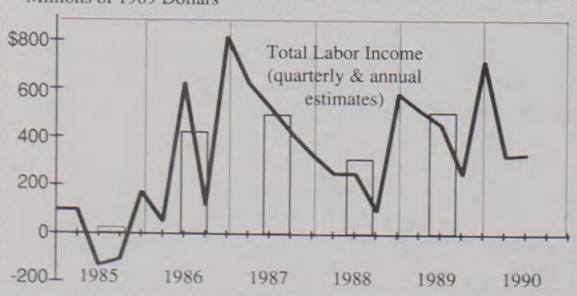
Montana Cattle and Wheat Production



Cash Receipts by Montana Farmers & Ranchers



Montana Farm and Ranch Labor Earnings



Sources: Economic Research Service, USDA (cattle and wheat prices); Montana Agricultural Statistics, Service (cattle and wheat production and cash receipts); and Bureau of Economic Analysis, U.S. Dept. of Commerce (labor income).

Farm and Ranch

Cattle and Wheat Price Trends

Agriculture in Montana is heavily dominated by wheat and cattle production, with cash receipts tied to these commodities accounting for about 80 percent of all agricultural receipts in the state. Cattle prices have steadily improved since 1986 and remain strong at well over $70 per hundredweight. Wheat prices, weak through much of the 1980s, improved temporarily in 1988 and 1989, but have sunk badly since.

At the same time, support prices for wheat under the Federal Farm Program also are much lower than in past years. The target price has been reduced from $4.38 per bushel in 1985 to a current level of $4.00. The average nationwide loan rate has been lowered from $3.30 to $1.95. When adjusted for inflation (as in figure 19), these wheat price declines are even more pronounced. In the midst of a worldwide bumper wheat harvest, the market price for wheat isn't expected to improve soon.

Production and Receipts in Montana

Cattle numbers in the United States declined considerably during the late 1970s and mid-1980s. In Montana, cattle numbers fell from 3.4 million head to about 2.5 million head. This decline in cattle numbers helped produce higher prices, but higher prices limit cattle producers' ability to increase marketings. About 1.1 billion pounds of cattle were marketed by Montana producers in 1989, up from 947 million pounds in 1986 (figure 20).

Droughts in 1985 and 1988 significantly cut wheat production in the state and higher production levels the last two years were partly offset by lower prices. In spite of this, cash receipts have generally increased for Montana agricultural producers (figure 21). Earnings by Montana's farmers and stockmen have improved from the disastrous levels of the mid-1980s (see figure 22). Labor earnings in both 1987 and 1989 were over $475 million as compared to much lower levels in 1983, 1984, and 1985.

The outlook for cattle producers is good. But growing worldwide grain supplies and falling grain prices make the current outlook for grain producers poor. This may create more pressure for reevaluating various provisions of the Federal Farm Program.

Conclusion

What's happening in Montana's natural resource industries is at least partly attributable to changing conditions and trends in these industries nationwide. This is further evidence that much of what happens in the state's economy is largely out of the control of state policymakers and business persons.

In the four years between 1986 and 1989, the Montana economy improved considerably. Total employment increased by nearly 19,000 workers, labor earnings grew by $636 million, and personal income increased by over $1 billion (see table 1). At least some of this growth is directly attributable to improvements among the state's natural resource industries.

Perhaps most important among these are improvements in agriculture. The measured labor income of agricultural producers in the state was about $475 million greater in 1989 than in 1985. Conditions remain good for the state's cattle producers, but have deteriorated significantly for grain producers.

Elements of Montana's mining industry were reborn in recent years. After years of decline, employment in nonfuel mineral mining increased by over 50 percent between 1986 and 1989, with labor income received by workers in this industry increasing by $58 million. Growth in this industry should continue, but not at the pace of the last few years.

Montana's nonresident travel industry continues to grow, with 3,100 more workers in 1989 than in 1985 and labor income received by these workers increasing by $23 million. This sector of Montana's economy also should see continued growth.

Although labor income received by wood products workers in 1989 is down about $12 million from what it was in 1985, employment in the industry has been fairly stable in recent years. This has contributed to greater stability in the state's economy as a whole. However, industry employment is expected to decline in coming years.

While the oil and gas industry continues to do poorly, most of the losses in employment and labor income by the industry occurred several years ago. Losses more recently have been relatively small and this has reduced the industry's impact on Montana's overall economy. Conditions may be improving for some increased exploration and development drilling in the state.

In summary, improvements in agriculture, metal mining, and nonresident travel, and relative stability in the wood products industry were major factors in the state's recent economic recovery. □

Larry D. Swanson is director of economic analysis, Bureau of Business and Economic Research, The University of Montana.

Table 1

Employment and Labor Income Changes in Montana During an Improving Economy, 1985 and 1989

	Total Employment				Total Labor Income, $1989			
	1985	1989	-- Change --		1985	1989	-- Change --	
All Sectors	403,460	422,414	+18,954	+5%	$6,777	$7,413	+$636	+9%
Selected Natural Resource Industry Sectors								
Lumber & Wood Products[a]	9,575	9,638	+63	+1%	$257	$245	-$12	-5%
Oil & Gas Extraction[b]	3,874	2,084	-1,790	-46%	$126	$63	-$63	-50%
Nonfuel Minerals Mining[c]	2,492	3,797	+1,305	+52%	$71	$129	+$58	+82%
Nonresident Travel[d]	12,609	15,741	+3,132	+25%	$151	$174	+$23	+15%
Agriculture	32,272	31,024	-1,248	-4%	$9	$484	+$475	–

[a]Doesn't include paper products manufacturing.
[b]Includes oil and gas exploration and production, but not refinery activity.
[c]Includes metal and nonmetal mineral mining, but excludes coal mining.
[d]Figures are estimates by the Bureau of Business and Economic Research that are benchmarked against estimates by the Institute for Tourism and Recreation Research, University of Montana.

Source: U.S. Department of Commerce, Bureau of Economic Analysis; and University of Montana, Bureau of Business and Economic Research.

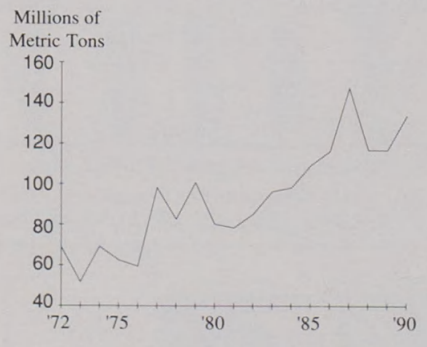
Agriculture Forecast

by Myles Watts

We expect final numbers for 1990 will show that the past year was somewhat poorer for Montana agriculture than 1989, primarily because of drought conditions in Eastern tier counties and lower wheat prices. We expect Montana's agriculture to rebound a little in 1991, back to 1989 levels.

Small grains and cattle generate approximately 85 percent of the state's agricultural cash receipts, so we will focus on these commodities. We'll discuss as well the impact of exchange rates and several key indicators of the sector's financial health -- cash receipts, land prices, and farm debt. Our 1991 forecast assumes normal yields. Currently, parts of Montana have below normal precipitation, though it's too early in the year to predict reduced yields.

Figure 1
World Wheat and Flour Stocks
1972 - 1990



Sources: U.S. Department of Agriculture; and Economic Report of the President.

Small Grains

Wheat accounts for approximately 55 percent of Montana's crop receipts; barley generates another 15 percent. Ample worldwide wheat and flour stocks (see figure 1), plus unrest in the Middle East and economic difficulties faced by the Soviet Union and other countries, have depressed wheat prices. On a per hundred weight basis, both wheat and barley are approximately $.04/lb., suggesting that the feed value for wheat is currently an effective floor under wheat prices.

New Farm Program rules have not yet been promulgated, so it is difficult to predict the program's impact in offsetting lower wheat and barley prices. However, with some modification, we expect new program rules to be similar to those in effect during 1990, and that the impacts from any changes will be quite modest.

Montana exports about 70 percent of its wheat, as well as a substantial portion of its barley production. Figure 2 shows the relationship between agricultural exports and exchange rates over the period 1967-1990. Not surprisingly, exchange rates and exports are negatively correlated. That is, when exchange rates are high, exports are low, and vice versa. Currently, exchange rates are somewhat lower than in the mid-1980s, and should not have a major negative impact on small grain prices.

Cattle

Cattle prices have been relatively strong for several years, and are expected to remain so for at least another year. Beef cow numbers have been lower since 1986 (see figure 3). Data on replacement heifers indicate that beef cow numbers likely will remain flat or increase only moderately. Even if replacement heifers were retained during 1991, it is unlikely that the cattle market would be substantially depressed for at least two years. For the longer term, we expect that relatively high beef prices will encourage replacement heifer retention, thus increasing cow numbers and eventually lowering cattle prices.

Figure 2
Agricultural Exports and Exchange Rates
1967 - 1990

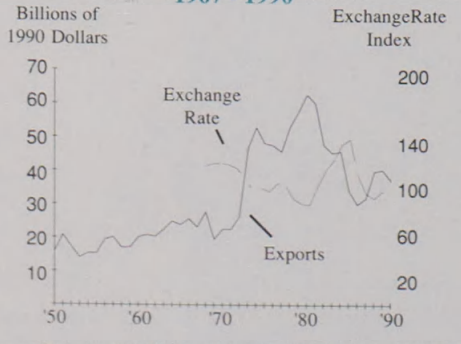
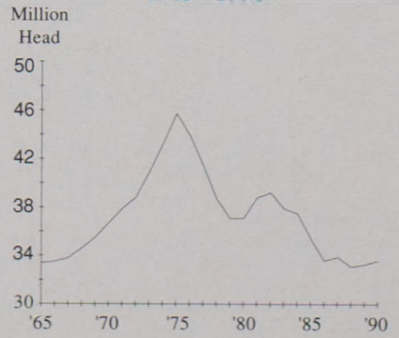
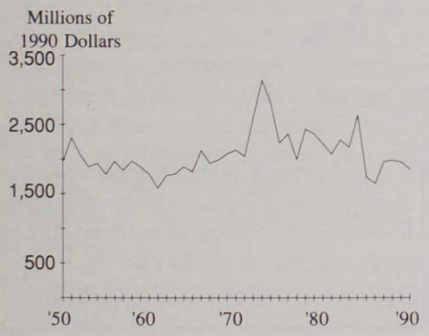


Figure 3
U.S. Beef Cow Numbers
1965 - 1990

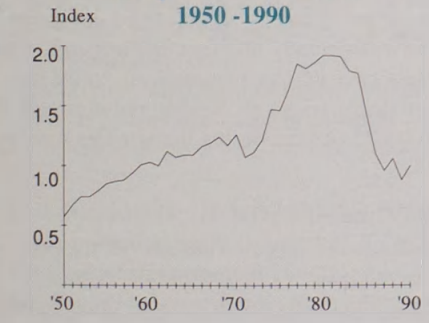


Sources: U.S. Department of Agriculture; and Economic Report of the President.

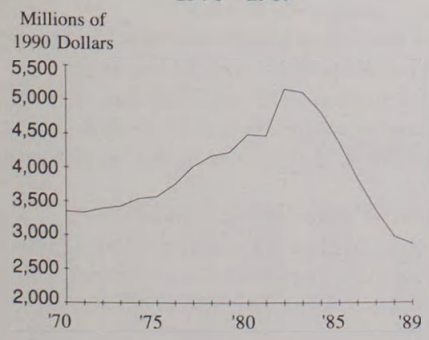
Figure 4, 5 & 6
Montana Agricultural Cash Receipts
1950 - 1990



Cropland Price Index
1950 -1990



Montana Agricultural Debt
1970 - 1989



Sources: U.S. Department of Agriculture; and Economic Report of the President.

Aggregate Agricultural Indicators

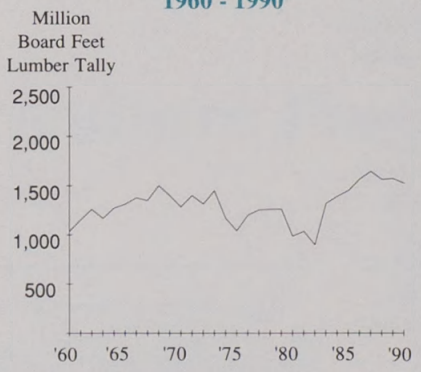
Figure 4 shows the volatility in Montana's agricultural cash receipts over a forty-year period. Note the small downturn projected in 1990 due to drought. Future years likely will be similar to 1987, 1988, and 1989, with relatively high cattle prices and government programs offsetting lower grain prices. During the last several years, program payments have accounted for between 15 and 24 percent of Montana agriculture's aggregate cash receipts.

Cropland prices rose at an annual rate of 4.1 percent above the rate of inflation between 1950 and 1980 (see figure 5). Then between 1980 and 1987, cropland prices declined by 50 percent in inflation-adjusted dollars. Land prices recently began moving upward again, increasing about 12 percent above the rate of inflation during 1989. Over the next several years, we expect land prices will either be constant in inflation-adjusted dollars, or increase moderately. A dramatic increase in small grain prices, however, could fuel a sharp rise in land prices.

As illustrated in figure 6, Montana's farm debt rose during the 1970s and reached a peak in 1982. Since then it has declined by approximately 54 percent. Debt-to-asset ratios in Montana agriculture are currently in the range of 16 to 18 percent. Though some Montana farmers face very difficult times, most of the state's agriculture is strong financially; approximately half the sector enjoys a debt-to-asset ratio of less than 10 percent. Dependence on farm program payments and climatic conditions, however, likely will generate continued concern. □

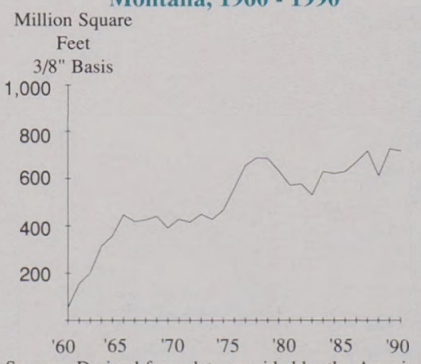
Myles Watts discussed the state outlook for agriculture. He heads the Agricultural Economics and Economics Department at Montana State University, Bozeman.

Figures 1, 2 & 3
Lumber Production
Montana
1960 - 1990



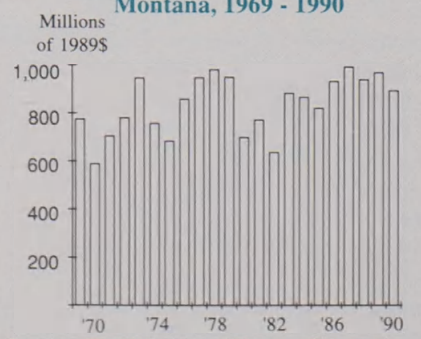
Source: Western Wood Products Association, *Statistical Yearbook of the Western Lumber Industry.*

Plywood Production
Montana, 1960 - 1990



Source: Derived from data provided by the American Plywood Association.

Sales Value of Wood and Paper Products
Montana, 1969 - 1990



Sources: The University of Montana, Bureau of Business and Economic Research; Current Forest Industries Information System; and Western Wood Products Association, *Statistical Yearbook of the Western Lumber Industry.*

Montana's Forest Products Industry

1991 and Beyond

By Charles E. Keegan III

Montana's forest products industry rebounded from severe market conditions in the early 1980s and by the last half of the 1980s, industry production and sales were at record levels. (See figures 1, 2, 3.) These high production levels were accompanied by five years of generally stable employment -- about 11,500 workers for the state's forest products industry. However, I believe the industry's recent relatively stable situation will give way in the 1990s to an entirely different scenario.

Poor markets are currently having a substantial impact on the industry. Housing and virtually all major components of the wood products markets have declined dramatically since the last half of 1990. Composite prices for lumber and plywood, for example, dropped 20 to 25 percent during the last five months of 1990 (see figure 4).

Market Impacts on Employment

My projections assume the expected duration of the poor markets will be the fourth quarter of 1990 and the first two quarters of 1991. These forecasts do not attribute some percent of the impact to a shortage of timber and some percent to poor markets for manufactured products.

Preliminary figures indicate employment directly in the wood products industry was down about 600 workers in the last quarter of 1990 vs. the comparable period in 1989. In February of 1991, it appeared employment had declined by more than 2,000 workers from February 1990 levels.

Comparing the first two quarters of each year, I expect 1991 employment to be down from 1990 levels by about 1,600 workers. This amounts to about a 15 percent decline in forest products industry employment for the first six months of 1991. Improved market conditions are expected by the third quarter of 1991.

Even when the current recession ends, limited timber availability will continue to plague Montana producers. Thus, it will be difficult for the industry to sustain large increases in production as it did coming out of the 1974-1975 and 1980-1982 downturns. Timber supplies are limited because:

- Low levels of timber sales from the national forests affect near-term availability.
- A projected decline in harvest from private timberlands suggests longer-term supply problems for the industry.

For the period 1988-1990, Montana national forests sold an average of 194 million board feet (MMBF) per year below the average annual allowable sale quantity prescribed under full implementation of the forest plans (figure 5). This shortfall amounts to 15 percent of the volume of timber processed by Montana's industry over that period.

The volume of national forest timber under contract -- at a very high level in the mid-1980s -- has fallen to its lowest level since 1962 (figure 6). Because of this low level, shortfalls for 1991, 1992, and 1993 will translate into production curtailments more directly than in previous years. National forest officials point to a number of related factors causing the low level of sales:

- Appeals and court decisions affecting timber sales, compounded by a lack of resolution of the wilderness issue.
- Old growth timber management requirements.
- Threatened and endangered species constraints.
- Cumulative effects on national forest sales from harvests on private lands and past harvest on the roaded portions of the national forests.
- Greatly increased cost of timber sale production (largely due to factors cited above), coupled with a budget that has not kept pace with increasing costs.

Because of constraints on national forest timber availability and the resulting production curtailments, Montana's wood products industry is projected to employ 1,200 to 1,600 fewer workers by 1994 than it employed in 1989.

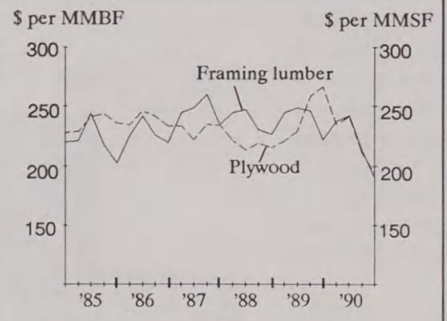
Long Term Outlook: 1994-2000

Timber supply projections made in the mid-1980s pointed to a shortfall statewide -- and about a 15 percent industry downsizing -- soon after the year 2000, as industrial private harvest rates substantially declined. However, conditions have worsened in the past five years, so the impact on Montana's timber industry probably will come sooner and be harsher than the mid-1980s outlook anticipated.

For one thing, industrial private harvest rates have been higher than projected over the past five years. Moreover, the industry faces additional comparable downsizing -- another 15 percent -- if the last three years are a predictor of the next ten in the national forest timber sale program.

Thus, it would by no means be a worst case scenario to project a 25 to 30 percent decline from 1989 levels in the size of Montana's timber processing industry over the next five to ten years. □

Figure 4
Lumber and Plywood Prices
United States, 1985 - 1990
(Constant 1989 Dollars)



Source: *Random Lengths* Publications, Inc.

Figure 5
Annual Timber Sale and Harvest Level
Montana's National Forests
FY 1985 - 1990

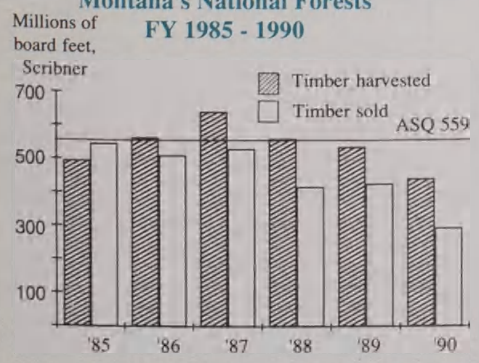
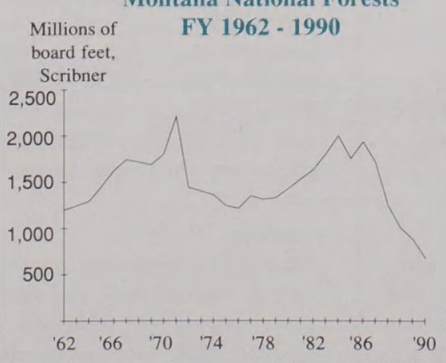


Figure 6
Uncut Volume Under Contract
Montana National Forests
FY 1962 - 1990



Source: Derived from data provided by the U.S. Forest Service, Region 1.

Charles E. Keegan III is director of forest products industry research and research associate professor.

Developments in Montana's Mining Industry

by Robin McCulloch

The Bureau of Mines and Geology at the Montana College of Mineral Science and Technology in Butte recently surveyed firms in Montana's mining industry. The survey was intended to gather information about the industry's effect on Montana's economy. Results of the survey will be released in a 1991 publication.

A number of projects were undertaken in 1990 which will lead to new mines and to production improvements at existing facilities.

Butte

Pegasus Gold discovered additional reserves which will extend the life of its Beal Mountain mine. In 1990, the operation employed 120 people with a payroll of $3.5 million.

Columbus/Nye

Stillwater Mining built a 30-ton per day smelter and created twenty-five new jobs in 1990. The company proposed doubling production for its mine and constructing a similar mine south of Big Timber. Payroll reached $13 million in 1990, and the mine operations employed 450-480 people.

Dillon

Pfizer invested $8 million in a new beneficiation plant. The company also modified its mine plan, anticipating increased talc production and the addition of twenty new jobs.

Ennis

Montana Talc enlarged reserves and changed its mine plan, personnel, and equipment, thereby increasing profitability. Reserves are sufficient for a minimum of twenty-five years.

Helena

Asarco completed a $15.5 million ore handling facility at its smelter which will eliminate blowing dust from ore concentrates.

Pegasus continued production and investment in the Helena region with projects on its Basin Creek and Montana Tunnels mines. At Basin Creek the company completed an 11 million-ton heap leach pad at a cost of $10.5 million. The mine will employ up to 100 workers with an annual payroll of $2.7 million. At Montana Tunnels, the company will change its mine plan to reduce operating cost by 40 percent while increasing the mine life.

Lewistown

Canyon Resources built a new pad at its C.R. Kendall mine, and doubled the processing capacity of its new plant.

Blue Ridge added a cyanide circuit to its mill at Heath, and prepared to bring portions of the Giltedge district into production.

Libby

Noranda Minerals continued work on its 18,000 foot adit south of Libby. The company has completed more than 5,200 feet of the adit and hopes to bring the mine into production in 1995, eventually employing 450 with a payroll of $12 million.

Malta

Pegasus Gold built a new 50 million-ton pad at its Landusky operation. The 1990 payroll for the mine was $7 million with 240 workers.

Noxon

Asarco continued work on its Rock Creek project, which is projected to employ 355 with an annual payroll of $12.5 million when it comes into production during the latter half of the 1990s.

Townsend

Continental Lime broke ground for an enlargement project which will double its production.

Whitehall

Placer Dome initiated development at its Golden Sunlight mine to extend mine life to 2006. The operation employed 250 in 1990, with a payroll of $8 million.

The only real low point for the mining industry in 1990 came with the closure of W.R. Grace's vermiculite operation east of Libby. Lincoln County lost eighty jobs, $900,000 in taxes, and a $2.5 million payroll. □

Robin McCullough is a staff field agent for the Montana Bureau of Mines and Geology at Montana Tech in Butte.

Montana's Oil and Gas Industry

by William W. Ballard

After experiencing a few boom years, Montana's oil and gas industry started downhill in 1981. The oil price crash of 1986 created further havoc throughout the industry, resulting in numerous company failures, office closures, and personnel transfers.

Presently, Montana has 250 million barrels of proven oil reserves and 830 billion cubic feet of known gas reserves. Montana produced 20 million barrels of oil in 1990, ranking it fourteenth among oil-producing states. Gas production in Montana ranks twentieth at about 40 billion cubic feet per year.

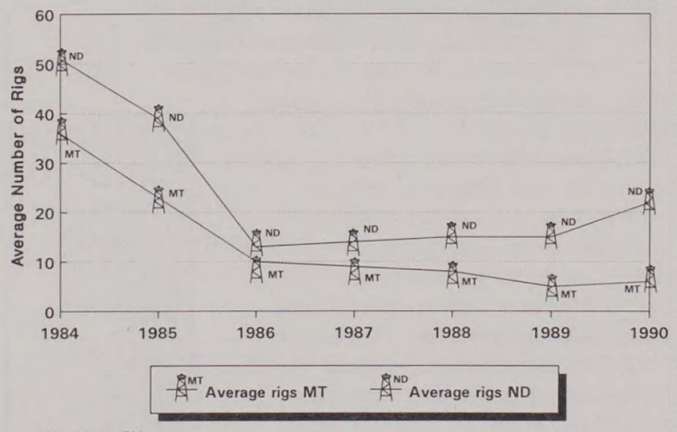
Montana lags behind other producing states in drilling activity. Figure 1 compares rig counts (the number of rigs operating at a given time) for Montana and North Dakota from 1984 through 1990. Even though the states share a very similar geologic setting in the Williston Basin, the rig counts show dissimilar activity levels. North Dakota's rig count is greater than Montana's in every year since 1984. Moreover, North Dakota's counts have increased since 1986, whereas Montana's have decreased, except for a slight upturn in 1990.

For an adequate oil exploration program, the industry needs stable oil prices. Some prospects can be drilled with $15 per barrel prices. But for an active program in all provinces, $22 is necessary. (See figure 2.)

If prices do in fact stabilize in the low twenties, Montana will see steady growth in drilling activity. But stabilization is the key. In my opinion, drilling will be concentrated in the Williston Basin (Eastern Montana) and the Sweet Grass Arch (Cut Bank, Shelby, Conrad areas). I see very little hope for the Rocky Mountain overthrust belt due to problems with access. □

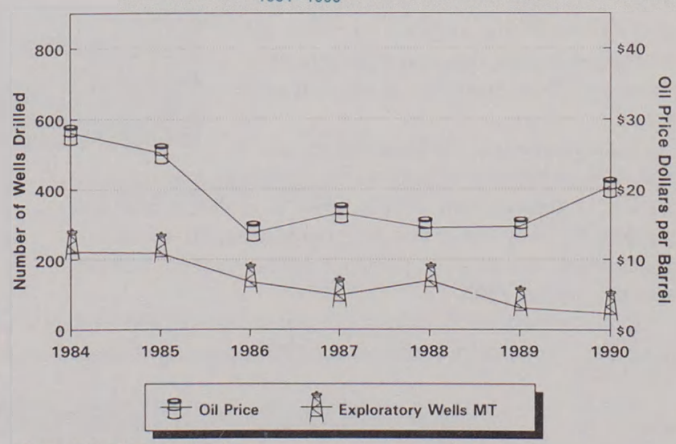
William W. Ballard discussed Montana's oil and gas industry. He is president of Balcron Oil Co., Billings.

Figure 1
Number of Oil Rigs
Montana and North Dakota
1984 - 1990



Well statistics from IPAA.

Figure 2
Oil Prices and Exploration Activity in Montana
1984 - 1990



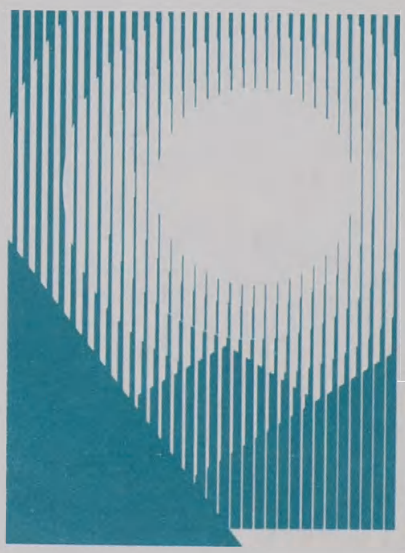
Oil price statistics from Montana Department of Revenue.
Well statistics from IPAA.

Travel and Tourism in Western Montana

by Steve McCool

Favorable economic conditions, good marketing, and an excellent product combined to make 1990 the best year yet for Montana's travel and tourism industry. The Institute for Tourism and Recreation estimates 5.5 million nonresidents visited Montana last year, an increase of about 8.5 percent over 1989. Most 1990 visitors (about 5.1 million) entered the state via private vehicles.

Statewide, nonresident enplanements at Montana's seven major airports were down slightly, by about 0.6 percent over 1989 figures. However, Glacier International, Butte, and Bozeman airports bucked the trend. Enplanements rose for those sites in 1990. Amtrack deboardings were up 4 percent over 1989.



Nonresident skier days at the state's major resorts grew by nearly 10 percent in 1990. This hefty increase was due to a highly effective marketing program, excellent snow conditions in Montana, and relatively poor snow conditions elsewhere at the start of the season.

But summer was the Montana recreation and tourism industry's best season. Nationally, person-trips grew by 3 percent from 1989 to 1990. In Montana, both nonresident highway traffic and accommodations tax revenue increased an estimated 13 percent from summer quarter 1989 to summer quarter 1990.

Once they got here, visitors to Montana spent a fair amount of money. Preliminary estimates for 1990 nonresident expenditures suggest a total of $725 million, up about 10 percent over the two year period 1988-1990.

Uncertainties in the 1991 Forecast

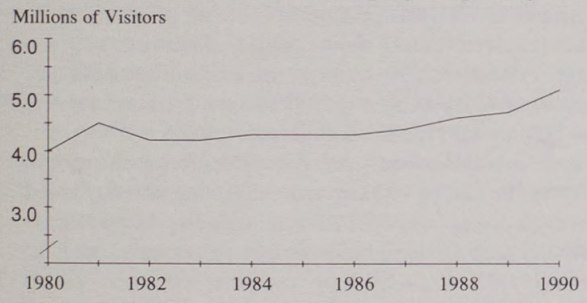
Both the recession and Persian Gulf War cloud Montana's 1991 travel and tourism forecast. Historically, a troubled economy tends to limit tourism and recreational pursuits. Continuing uncertainty in the Gulf may push gas prices higher and further pinch travel.

Over the last recession (1981 to 1982), the number of person-trips decreased by about 7 percent at the national level. Long-distance vacation person-trips decreased by about 5.5 percent, while weekend vacation person-trips decreased over 16 percent. Interestingly, travelers not only tended to combine business and vacation trips, but trip distances and lengths increased during the recessionary period.

For Montana during the same recessionary period, nonresident highway traffic declined an estimated 4.7 percent, while air traffic increased somewhat. Visits to Glacier and Yellowstone Parks declined between 6 and 7 percent.

Experience in the 1970s suggests that travelers are more influenced by gasoline availability than price, and that price tends to affect the number of short distance recreation trips more than long distance vacations. □

Figure 1
Number of Visitors Entering by Highway*



*Excludes long-haul, over the road truck traffic and other commercial and military transport.

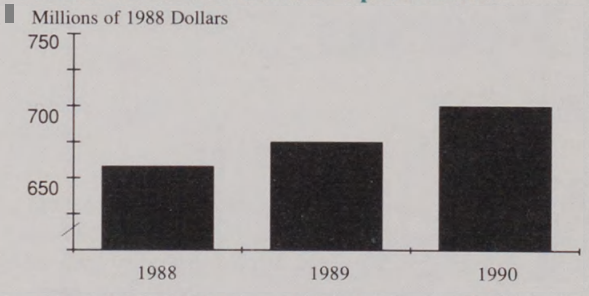
Sources: Montana Department of Highways; and Institute for Tourism and Recreation Research, The University of Montana.

Summary

If the war can be resolved quickly and the recession is mild and short, we expect Montana's 1991 travel and tourism industry to grow by about 5 percent in 1991. With continuing armed conflict and/or a deeper recession, the outlook could change dramatically. Increases in trip length -- as typified in the previous recession -- and flexible marketing could help mitigate a downturn or slowed growth for the industry. □

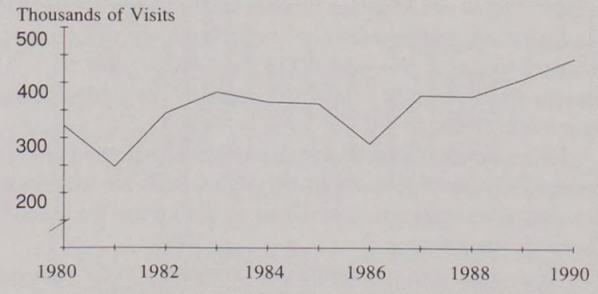
Steve McCool is director of the Institute for Tourism and Recreation Research, The University of Montana.

Figure 2
Estimated Nonresident Expenditures



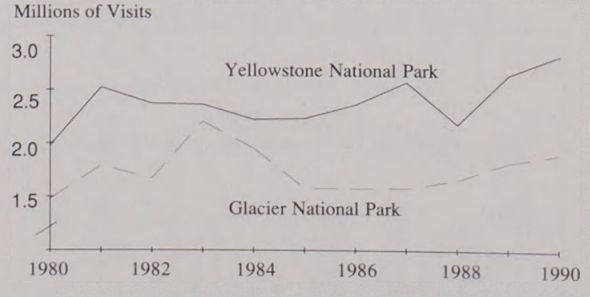
Source: Institute for Tourism and Recreation Research, The University of Montana.

Figure 3
Nonresident Skier Visits



Sources: U.S. Forest Service; and Institute for Tourism and Recreation Research, The University of Montana.

Figure 4
National Park Visits



Source: U.S. Park Service.

Consumer Sentiment in Montana

by Paul E. Polzin

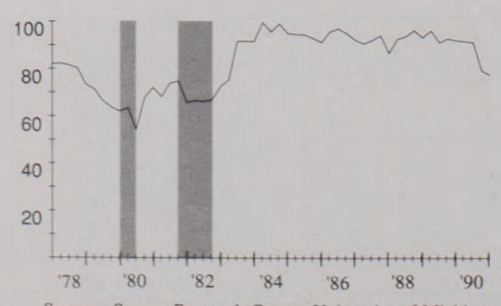
Analysis of population, income, and employment provides a good overview of statewide and local economies. But these data provide very little information about consumers. Nationally, consumer spending accounts for almost two-thirds of the Gross National Product (GNP). Here in Montana, a large segment of the business community deals directly with consumers -- whether it be retail trade, services, or financial institutions.

Twice each year, the Bureau of Business and Economic Research calculates Montana's Index of Consumer Sentiment. This Index is based on a statewide telephone survey of a cross section of adults. It is conducted in conjunction with the Montana Poll, which is jointly sponsored by the Bureau and the *Great Falls Tribune*.

Montana's Consumer Sentiment Index is patterned after one developed by the University of Michigan. Both are computed from consumer responses to a series of questions. We asked Montana consumers:

- How their own household did financially in the past year;
- If they expect their household economic situation to improve or deteriorate in the next twelve months;
- How they expect the state's economy to do in the next twelve months and the next five years; and
- If they think the next six months would be a good time to buy major retail items such as furniture and appliances.

Figure 1
Index of Consumer Sentiment
United States
First Quarter 1978 - Fourth Quarter 1990



Source: Survey Research Center, University of Michigan.

Index Predicts Turning Points

Nationwide, the Index of Consumer Sentiment has been recognized as a reliable predictor of turning points in the business cycle. Figure 1 shows the U.S. Index from 1978 through 1990. Note downturns in the Index immediately preceding both the 1980 and 1981 recessions. Similarly, upturns in the Index anticipate economic recoveries.

Now look at last year's precipitous decline in the national Index. By the end of 1990, consumer sentiment was about 12 percentage points below its value at midyear. As previously noted, this drop was one indicator of a recession in the U.S. economy.

The Index of Consumer Sentiment is a good indicator of changes in national economic trends. But it does not necessarily signal the magnitude of change. Look back at the early 1980s. Here the Index dropped by almost 25 percent. Yet consumer spending and other economic indicators did not decrease by anywhere near that amount.

The 12 percentage point decline in 1990 represents a drop of almost 15 percent, and the Index may continue downward. But consumer spending is not projected to decrease by anywhere near this amount. In short, when looking at the Index of Consumer Sentiment, we should concentrate on the direction of the changes, rather than their magnitude.

Montana's Index

We compute Montana's Index twice early (approximately each June and December) and have done so since 1982. The national index is computed every month. The Montana data, therefore, is not quite as precise as national figures. Nor do we have data for the downturn phase of the last business cycle.

As shown in figure 1, the Montana Index of Consumer Sentiment declined from 107.4 in June 1990 to 91.5 in December 1990, a decrease of 15 percentage points. This provides one more indicator that Montana's economy is now feeling the national recession's impact, and at about the same time as the rest of the country.

Broad trends in the Montana economy during the 1980s are mirrored in the Index for Consumer Sentiment. Earlier we talked about the recovery in 1983 and 1984, the downward slide in 1985 and 1986, and finally the "fragile" recovery beginning about 1987. These trends are all present in the Index. Remember that we are looking at changes in the Index, not necessarily their magnitude.

Regional Indexes

We've also calculated an Index of Consumer Sentiment for each of the three multicounty regions mentioned earlier. Since they are based on fewer responses than statewide figures, the regional indexes should be interpreted with more caution.

The statewide decline which began in late 1990 also appears

in each of the three regions. The Southeast (Billings trade area) experienced a slight uptick from late 1989 to the middle of 1990; then the Index turned downward. In the other two regions, consumer sentiment was roughly stable during the first half of 1990 and then declined during the last half of the year.

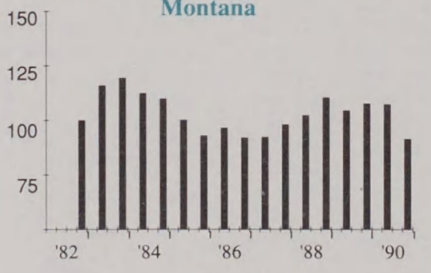
What can we conclude? First, recent declines in the U.S. Index provide one more piece of evidence that the country is in a recession. Second, Montana's Index also declined, confirming that we will not escape cyclic impacts; the fact that it turned downward the same time as the U.S. Index verifies that Montana feels the impact of recession at the same time as the nation. And finally, consumer sentiment declined all over Montana -- even in portions of the state not severely impacted by past recessions. In other words, retailers and other business people in the Southeast and Northeast will not escape impacts of this recession.

We can gain a little insight into consumer behavior by looking at just why the sentiment Index declined. Remember that the Index is computed from a number of questions. We asked consumers how they personally were doing and how well they expected to do in the future. Then we asked them how they thought how the state's economy was doing. Response patterns were consistent; in all cases people thought the state's economy was doing worse, while their own economic situation remained stable. Consumers think they will weather the storm relatively well, but that everyone else will feel the impacts of the recession.

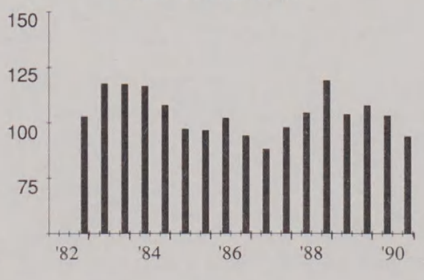
Our next Montana Poll is scheduled for May 1991. We should find out then if the Montana Consumer Sentiment Index does, in fact, reflect the recovery predicted for that time. □

Paul E. Polzin is director of the Bureau of Business and Economic Research and professor of management, School of Business Administration, The University of Montana.

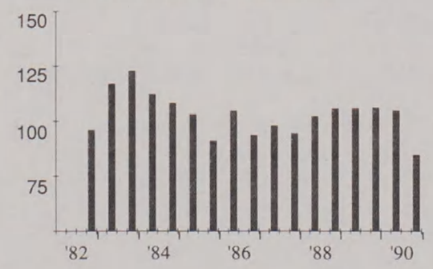
Figures 2, 3, 4 & 5
Index of Consumer Sentiment
November 1982 - December 1990
Montana



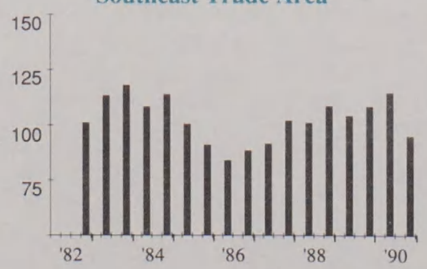
West Trade Area



Northeast Trade Area



Southeast Trade Area



Source: The University of Montana, Bureau of Business and Economic Research, *Economics Montana.*

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Readers of the *Montana Business Quarterly* are welcome to comment on the *MBQ*, request economic data or other Bureau publications, or to inquire about the Bureau's research capabilities.

The Bureau of Business and Economic Research is the research and public service branch of The University of Montana's School of Business Administration.

The Bureau is regularly involved in a wide variety of activities, including economic analysis and forecasting, forest products industry research, and survey research.

The Bureau's Economics Montana forecasting system is an effort to provide public and private decision makers with reliable forecasts and analysis. It is made possible by a generous grant from US West. These state and local area forecasts are the focus of the annual series of Economic Outlook Seminars, cosponsored by the Bureau and respective Chambers of Commerce in Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, and Missoula.

The Bureau also has available county data packages for all Montana counties. These packages provide up-to-date economic and demographic information developed by the Bureau and not available elsewhere.

The Montana Poll, a quarterly public opinion poll, questions Montanans about their views on a variety of economic and social issues. It is cosponsored by the Bureau and the *Great Falls Tribune*. In addition, the Bureau conducts contract survey research and offers a random digit dialing program for survey organizations in need of random telephone samples.

The Forest Industries Data Collection System, a census of forest industry firms conducted approximately every five years, provides a large amount of information about raw materials sources and uses in Montana, Idaho, and Wyoming. It is funded by the U.S. Forest Service. The Montana Forest Industries Information System collects quarterly information on the employment and earnings of production workers in the Montana industry. It is cosponsored by the Montana Wood Products Association.

The Bureau's Natural Resource Industry Research Program enables the Bureau to continuously monitor Montana's natural resource industries and improve the public's knowledge of them and their roles in the state and local economies. This program provides easily accessible information about all the natural resource industries. Sponsors are the Montana Mining Association, Plum Creek Timber Company, Montana Petroleum Association, Montana Wood Products Association, and American Forest Resource Alliance.